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ABSTRACT

An evaluation model was developed to measure the effectiveness of pilot programs in vocational education for handicapped persons in selected State schools and State hospitals in Texas. The model was field-tested by conducting evaluations of 16 pilot programs in vocational education for the handicapped located in seven State schools/hospitals. Data were collected by evaluation teams from the field of vocational education or special education for the mentally handicapped. The testing indicated that the model was useful for collecting and evaluating appropriate data to determine program effectiveness. It was concluded that the model program concepts were more applicable to vocational education programs in public secondary and postsecondary institutions than to pilot programs in the State schools/hospitals. Model development, test procedures, and findings are detailed in the report. Vocational program evaluations are appended, including a 39-page section presenting the instruments used to obtain evaluation statement ratings (questionnaires to conduct personal interviews with directors, counselors, program instructors, vocational students, and employers). Thirty-one pages of computer program information and tabulated data conclude the document. (MF)

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A MODEL FOR EVALUATING PROGRAMS IN VOCATIONAL EDUCATION FOR THE HANDICAPPED

with field test results
obtained by

Evaluating Pilot Programs in
Vocational Education for the Handicapped in
Selected State Schools and State Hospitals
in Texas

A final report of research performed
in cooperation with the

Division of Occupational Research and Development
Department of Occupational Education and Technology
Texas Education Agency

and the

College of Education
Texas A&M University

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August 1975

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ABSTRACT

Purpose

The purpose of this study was to develop an evaluation model which could be utilized to determine the effectiveness of pilot programs in vocational education for the handicapped in terms of meeting established objectives of vocational education. This purpose was to be accomplished by testing the model in an effort to obtain relative measures of selected state schools' and state hospitals' success in accomplishing the established objectives of vocational education.

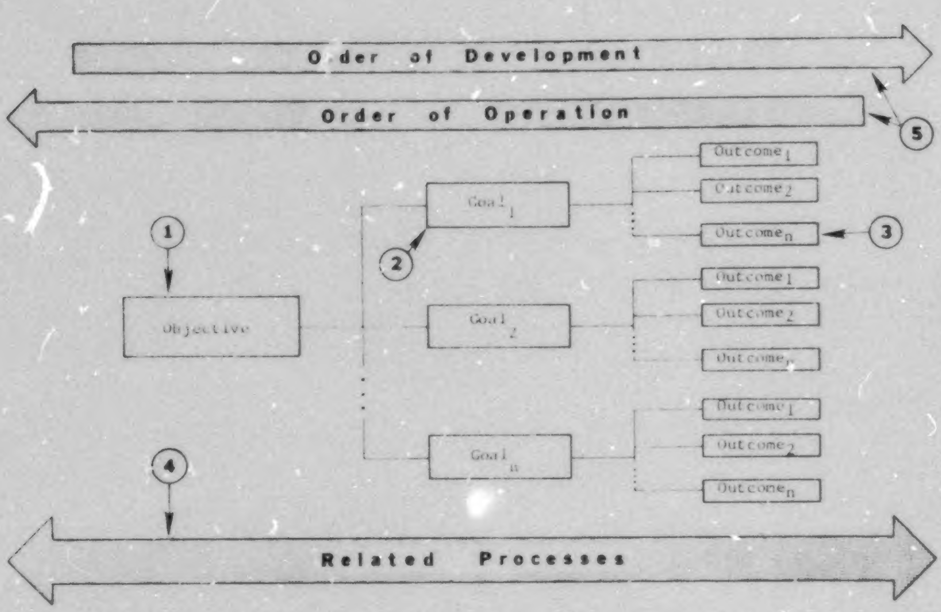
The Evaluation Model

Following an extensive review of the literature relative to educational evaluation, six postulates were formed concerning the expectations of an evaluation model. These postulates were utilized to form the theoretical base for the evaluation model and related processes developed in this study. A description of the model's primary components, related processes, and selected operational procedures follows:

1. OBJECTIVES: Four objectives were utilized which were universal in nature and expressed desired outcomes for vocational education in terms of national interests. The degree of success experienced at an institution in accomplishing each objective was depicted by an objective achievement score. Each objective achievement score was calculated by summing the degree of goal fulfillment for all goals relative to a particular objective.

2. GOALS: Numerous statements were utilized to interpret the vocational education objectives in terms of desirable programmatic concepts relative to the educational setting and particular programs included in the evaluation. The proportionate amount each goal contributed to the objective achievement score was determined by a weight factor. Weight factors were derived from importance and effort ratings assigned each goal statement by the individuals who were administratively responsible for the conduct of the programs evaluated. The degree to which each goal was fulfilled was dependent upon the sum of the ratings assigned the outcomes pertaining to the specific goal.
3. OUTCOMES: The data base consisted of numerous process and product type data elements; process data determined the existence of desirable program features and product data assessed the effectiveness of the features. Each data element was in the form of a personal interview question or a prescribed observation--both required a "Yes" or "No" answer. Each answer received a scaled rating based upon the evidence available to support the response.
4. RELATED PROCESSES: Data were collected via on-campus visits by an external evaluation team utilizing prepared data collection instruments. Data analysis procedures were developed which included computer programs utilized in determining weight factors and objective achievement scores.

A pictorial and descriptive summary of the major components included in the evaluation model are presented on the following page.



① Four objectives are utilized which are universal in nature and express desired outcomes for vocational education in terms of national interests.

The degree of success experienced at an institution in accomplishing each objective is depicted by an objective achievement score.

Each objective achievement score is calculated by summing the degree of goal fulfillment for all goals relative to a particular objective.

② Numerous statements are utilized to interpret the vocational education objectives in terms of desirable programmatic concepts relative to the educational setting and particular programs to be included in the evaluation.

The proportionate amount each goal will contribute to the objective achievement score is determined by a weight factor.

Weight factors are derived from importance and effort ratings assigned each goal statement by the individuals who are administratively responsible for the conduct of the programs to be evaluated.

The degree to which each goal is fulfilled is dependent upon the sum of the ratings assigned the outcomes pertaining to the specific goal.

③ The data base consists of numerous process and product type data elements--process data to determine the existence of desirable program features and product data to assess the effectiveness of the features.

Each data element is in the form of a personal interview question or a prescribed observation--both require a "Yes" or "No" answer.

Each answer receives a rating based upon the evidence available to support the response.

④ Data is to be collected via on-campus visits by an evaluation team utilizing prepared data collection instruments.

Data analysis procedures have been developed which include computer programs to utilize in determining weight factors and objective achievement scores.

⑤ The model was developed by proceeding in a systematic manner from the objectives to the outcomes; a program is evaluated by proceeding from the outcomes to the objectives.

Field Testing

The model and its related processes were field tested by conducting evaluations of 16 pilot programs in vocational education for the handicapped located in seven state schools/state hospitals in Texas. Data were collected via on-campus visits by four member evaluation teams consisting of individuals who were knowledgeable in the field of vocational education or in the field of special education for the mentally retarded.

Evaluation Model Findings

Through the field testing, it was found that:

1. Through use of the model, an abundance of factual decision-making information was provided for evaluative purposes.
2. The data base provided sufficient process and product data to determine program effectiveness and describe contributing factors.
3. The data collection methods prescribed in the model were both efficient and effective.
4. The data analysis procedures provided for direct comparisons on either a program by program or institution by institution basis.
5. The programmatic concepts expressed by the goals included in the model were more applicable to vocational education programs in public secondary and post-secondary institutions than to pilot programs in the state schools/state hospitals.

ACKNOWLEDGEMENTS

My profound gratitude is extended to Mr. T. R. Jones, Chief Consultant with the Division of Occupational Research and Development; Texas Education Agency, for his support and assistance. Gratitude is also extended to the other visitation team members who contributed many hours to the data collection process: Mr. Paul Myers, Research Management Assistant with the Division of Occupational Research and Development; Mr. Louis Corenblith and Dr. Stanley Fudell, Consultants with the Texas Department of Mental Health and Mental Retardation; and Mr. Paul Williams and Mrs. Eleanor Mikulin, Consultants with the Division of Special Education and Special Schools; Texas Education Agency. My appreciation is also extended to the staff members and students in the state schools/state hospitals who graciously received the visitation teams and unbegrudgingly gave of their time and information.

G.B.

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CHAPTER 1

INTRODUCTION

In an effort to expand the role of education in meeting the social and economic needs of society, billions of dollars have been provided to educational agencies at all levels by many private and governmental agencies. Tangible returns for such large investments have customarily been difficult to identify. Thus, many of the funding agencies are now asking if their huge expenditures for education are producing the desired results. In effect, the funding agencies are asking for, and even in some cases requiring, evaluative information upon which to base policy decisions. These requirements are especially evident in federal assistance programs, e.g., Title I and Title III of Public Law 89-10 (Elementary and Secondary Education Act, 1965) where the law explicitly states that fund recipients will make at least annual evaluation reports and Public Law 90-576 (Vocational Education Amendments, 1968) where the law strongly implies that recipients make periodic program evaluation.

Such requirements and implications for evaluation seem reasonable. Funding agencies and the public have the right to know whether their colossal financial investments have resulted in increased benefits to the educational consumer--the student. Of equal importance is the fact that educators themselves need evaluative information to provide

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The citations on these pages follow the style of the *Journal of Educational Psychology*.

rational bases for their decisions among alternative plans and procedures. However, to justify requirements for evaluations does not make them operational. Educators must respond to the implications of accountability and requirements for evaluation, and they must do so effectively.

The Texas Education Agency, Division of Occupational Research and Development, expressed a desire to determine whether significant changes relative to occupational success had been effected by allocating special funds to pilot programs in vocational education for the handicapped in state schools and state hospitals in Texas. Thus, it was timely that this study be conducted in an effort to design a vocational program evaluation model that would provide decision makers with reliable information upon which to base rational decisions relative to the effectiveness of a program in meeting the vocational education needs of the student clientele.

Purpose and Objectives

The purpose of this study was to develop an evaluation model which could be utilized to determine the effectiveness of pilot programs in vocational education for the handicapped in terms of meeting established objectives of vocational education. This purpose was to be accomplished by fulfilling two contributing objectives, namely:

1. To test the model and the related processes necessary for evaluating pilot programs in vocational education for the handicapped.

2. To obtain a relative measure of selected state schools'/ state hospitals' success in accomplishing established objectives of vocational education.

Nature of the Problem

A prime objective of the Vocational Education Amendments of 1968 was to assist States in providing meaningful vocational education to individuals who, due to their handicapping condition, could not succeed in regular vocational education programs. To this end, the Vocational Education Amendments of 1968 (Sec. 122. (c)(3)) requires that "at least 10 per centum of each State's allotment of funds appropriated under section 102(a) for any fiscal year beginning after June 30, 1969, shall be used only for the purpose set forth in paragraph 4(B) [vocational education for handicapped persons] of subsection (a)."

The Vocational Education Amendments of 1968 also provides the following definition for identifying handicapped individuals: "The term 'handicapped', when applied to persons, means persons who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled or other health impaired persons who by reason thereof require special education and related services" (Sec. 108. (6)).

Because vocational education administrators in many states found it difficult to interpret the true meaning of the term 'handicapped' as found in the Vocational Education Amendments of 1968, a more inclusive definition was given in the *Federal Register* (1970) and is stated as:

> (o) "Handicapped persons" means mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled, or other health impaired persons who by reason of their handicapping condition cannot succeed in a vocational or consumer and homemaking education program designed for persons without such handicaps, and who for that reason require special educational assistance or a modified vocational or consumer and homemaking education program. (p. 7335)

In response to the directives set forth in the Vocational Education Amendments of 1968, a committee composed of representatives from the Texas Rehabilitation Commission, the Division of Special Education and Special Schools, and the Division of Occupational Education and Technology began to develop a specific plan for implementing vocational education programs for the handicapped in the State of Texas. The plan developed by this committee was adopted by the State Board of Education on June 7, 1969 (Meyer, 1972), and called for state funded pilot vocational education programs for the handicapped to take the following three-phase approach:

> Phase I Exploratory, prevocational activities to include vocational assessment techniques leading to an occupational diagnosis.
>
> Phase II Vocational education programs in a shop or laboratory setting either especially designed for the handicapped or in a regular vocational program with modified curriculum.
>
> Phase III Job placement, evaluation, and former student follow-up. (p. 9)

Following the State Board of Education's action, 10 state schools/state hospitals received approval to conduct pilot vocational education programs for the handicapped during the 1969-70 academic term. Two additional state schools/state hospitals received approval for the 1970-71 term and three more were added to the approved list for the

1971-72 term bringing the current total to 15. Because the pilot programs being conducted at the Texas School for the Blind and the Texas School for the Deaf are special purpose programs, they were not considered for this study; thus, a total of 13 state schools or state hospitals offering 31 different pilot programs in vocational education for the handicapped remained which could be used to test the evaluation model.

Also during this time span, 1969-72, 102 other educational units (education service centers, junior colleges, and independent school districts) received approval to conduct pilot vocational education programs for the handicapped. As these pilot programs evolved, local school district and junior college programs became primarily Phase II components of the plan while the education service centers have exclusively Phase I components. The state schools and state hospitals have predominately Phase II programs with a few Phase I components attached. Phase III is the responsibility of the Texas Rehabilitation Commission, either through its cooperative programs or through direct service by one of its counselors.

The vocational education programs for the handicapped being conducted in the independent school districts have since been transferred to operating status with state program responsibilities currently resting with the respective regular program staffs in the Division of Public School Occupational Programs. State level administrative responsibilities for the programs in the state schools and state hospitals have remained with the Division of Occupational Research and Development.

Because the 1974-75 academic term represents the last year that the vocational education programs for the handicapped being conducted in the state schools and state hospitals are to be funded as pilot programs, the Texas Education Agency had determined that selected programs should be evaluated in an effort to determine their effectiveness in preparing handicapped individuals for the world of work. Therefore, it was the intention of this study to develop and test a program evaluation model which could be followed in evaluating pilot vocational education programs for the handicapped in selected state schools and state hospitals in Texas.

A Theoretical Base

A trace of the historical developments in the evolution of educational evaluation has revealed a considerable increase in the domain considered as legitimate for investigation by the evaluator. During the formative years of public education in this country until the mid-thirties, evaluation was used almost as a synonym for testing. Testing theories had been developed on the assumption that the purposes of evaluation were to measure individual differences in pupils and to describe groups of students. Comparisons, when appropriate, were made between groups or between a group and an established norm.

From the latter thirties until the advent of the post-Sputnik subject-matter curriculum project, a basic pattern of evaluation activities began to emerge. Evaluation developments during this time span were characterized by an increased concern for the higher-order cognitive and affective objectives and the consequent inappropriateness of comparative evaluations through the use of groups or norms. Evaluations were primarily concerned with determining the degree to which students were obtaining behaviorally stated objectives; yet the objectives themselves were not considered appropriate for evaluation.

Following the inception of the large, governmentally endowed curriculum projects of the early sixties and the increased emphasis being placed on educational accountability, educational evaluation became a primary concern of many educators. Partially responsible for this increased concern, were the evaluation requirements incorporated into federal assistance legislation. It became readily apparent that the evaluation practices of the past were not capable of meeting the new and emerging demands for decision-making information. Thus, a new philosophy of evaluation began to emerge and the previously disjointed practices of evaluators began to develop into a formal technology.

In the formation of the new technology, it was determined that neither the traditional experimental design nor the management tools developed for government, business, or industry was capable of providing the necessary information for choosing among decision-alternatives. Decision-making questions could only be answered following the assessment of both the product and the process of the educational institution. Thus, the need arose for evaluation models, designed for educational situations, which would provide the necessary data upon which judgements could be made concerning the worth of what was being taught and the efficiency of the methods employed. Furthermore, evaluation is currently conceived as a means of judging the ultimate worth or value of an educational endeavor. Therefore, the program comparisons issue becomes a central issue in the development of an evaluation model.

Thus, based upon the writings of evaluation theorists and model developers, the following points of consideration were used to form the theoretical base for this study:

1. An evaluation model must be capable of providing factual decision-making information to a specific audience.
2. An evaluation model must provide a means for fully describing all aspects of an educational program.
3. The evaluation model must be capable of producing reliable decision-making information without relying on an experimental design.
4. Evaluation models utilized in education should be designed and developed for educational situations.
5. The data analysis procedures employed in the program evaluation model should allow for direct program comparisons.
6. The performance indices employed to determine the effectiveness of a program should be composed of both process and product criteria.

Definition of Terms

The following definitions describe terms which were used in conducting this study:

1. *Program Evaluation Model* -- an example of a plan of procedure, which may be imitated, for determining the effectiveness of instruction.
2. *Vocational Education Objective* -- statements which define the programmatic thrust and reflect the desired outcomes for vocational education in terms of state and community interests and student benefits (Starr & Dieffenderfer, 1972).
3. *Goal Statement* -- a statement which provides a basis for producing a core of information and whose achievement constitutes a proportional fulfillment of a specific vocational education objective.

Delimitations

The following delimitations were applied to this study:

1. Nineteen pilot programs in vocational education for the handicapped, offered by seven state schools/state hospitals in Texas during the 1974-75 academic term, were utilized to test the program evaluation model developed in this study.
2. Only those students who were enrolled in a specific pilot program for a period of not less than three months were considered as prospects for personal interviews.
3. Only those employers who had a former student working for them for a period of at least three months were considered for personal interviews.

Limitations

This study was subject to the following limitations:

1. It was recognized that the director of education at each of the institutions selected may have given higher ratings to those goal statements which more nearly depicted the operational procedures of the pilot programs in his school or hospital.
2. It was recognized that the various members of the evaluation team perceived the operational procedures of the pilot programs differently.

Basic Assumptions

This study was based on the following assumptions:

1. The goal statements selected by personnel in the Division of Occupational Research and Development, Texas Education Agency, did in fact depict the operational and procedural intents of the pilot programs in vocational education for the handicapped.
2. The evaluation team members' ratings of the qualified "Yes" and "No" answers were consistent among the various institutions and programs included in the testing of the evaluation model.

CHAPTER II

MODEL DEVELOPMENT AND TEST PROCEDURES

Models are generally created for the purpose of assisting the thought process. Depending upon the precise role the model is to play and the state of knowledge in the field, the model itself may range from a full-scale or miniature replica to a completely abstract calculus. This kind of activity is valuable if it does not become an end in itself; there must be an effort to test the validity of the exercise (Taylor & Cowley, 1972). Thus, based on the theoretical points of consideration cited in the previous chapter, this chapter will present a model for evaluating vocational education programs and describe the procedures that were followed in an attempt to test the validity of the concept.

Model Development

The purpose of this study was to develop an evaluation model which could be utilized to determine the effectiveness of selected pilot programs in vocational education for the handicapped in state schools and state hospitals in Texas in terms of meeting established objectives of vocational education. This purpose was to be accomplished by fulfilling the two objectives of this study, namely:

1. To test the model and the related processes necessary for evaluating pilot programs in vocational education for the handicapped.

2. To obtain a relative measure of selected state schools'/ state hospitals' success in accomplishing established objectives of vocational education.

Because The Center for Vocational and Technical Education at The Ohio State University (hereafter referred to as The Center) had developed a system for state evaluation of vocational education programs (Starr & Dieffenderfer, 1972) which also appeared to be based on a number of the points of consideration developed in Chapter II, The Center system was utilized as a point of departure for the evaluation model developed in this study. However, the evaluation procedures developed by The Center were designed to be implemented in an educational setting that differed substantially from the state schools and state hospitals in Texas. Thus, apart from a similar skeletal outline of basic evaluation strategies, the processes and procedures developed in this model are germane to the pilot programs in vocational education for the handicapped.

In addition to being based on current concepts of evaluation, the evaluation system developed by The Center also included other features which made it a logical point of departure for the evaluation model developed in this study. These desirable features included:

1. High level of involvement from various agencies, groups, and individuals in the formation and testing of the system. Involved individuals included evaluation consultants and specialists, state directors of vocational education, vocational program specialists, psychologists, and sociologists.

2. Use of two advisory committees and a third committee composed of Center specialists who reviewed the project plans, evaluation materials, and procedures.
3. Field testing of the evaluation system in three states to determine the system's efficacy and efficiency.

Although the model developed in this study utilized a number of the features and processes developed by The Center, it differed in several respects and provided extensions in other areas. The primary differences and extensions were:

1. The model developed in this project was utilized to evaluate pilot vocational education programs for the handicapped in state schools and state hospitals; whereas The Center model was designed primarily for evaluating programs in public secondary and post-secondary institutions.
2. In this model, most of the data collection instruments are completed by visitation team members; whereas in The Center model, the majority of the data collection instruments are completed by personnel at the institution being evaluated.
3. The model utilized in this project provides a means for those individuals who are responsible for the conduct of the programs being evaluated to assign various weight factors to each of the goal statements. The Center model does not provide a means for assigning weights to goal statements.
4. The data analysis method utilized in this model provides for a direct comparison of the rate of achievement between

institutions. The Center model does not provide for institution or program comparisons.

Similar to the evaluation model created by The Center, the model developed in this study has as its main components objectives, goals, and outcomes. Figure 1 schematically depicts the relationship of the three components.

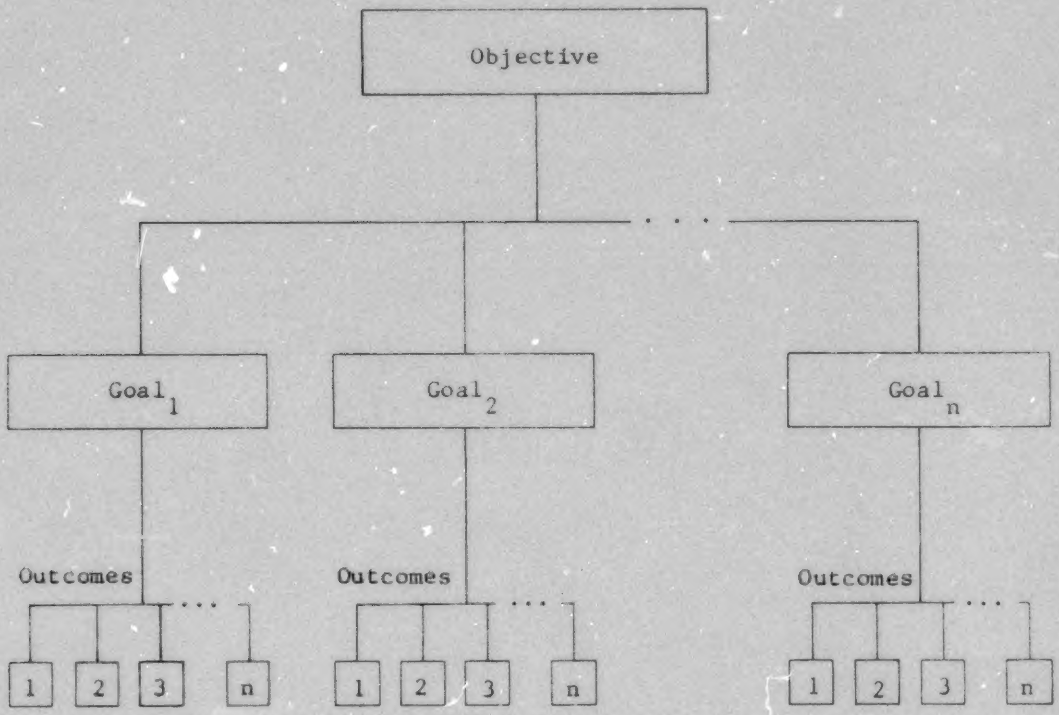

Objective
Goal$_1$
Goal$_2$
Goal$_n$
Outcomes
Outcomes
Outcomes
1
2
3
n
1
2
3
n
1
2
3
n

Figure 1. Schematic diagram depicting the relationship of the stated objective to the goal statements and outcomes.

In this model, the objectives reflect the desired outcomes for vocational education in terms of national interests. However, these objectives are insufficiently precise to be measured directly.

Therefore, it was necessary to interpret each objective in the form of numerous goal statements which are sufficiently precise to be measurable. The extent to which each goal statement is fulfilled is determined by the number of affirmative responses (outcomes) relative to each goal. Thus, by first summing the number of affirmative outcomes related to each goal statement, and next, by summing the degree to which each goal statement was fulfilled, it becomes possible to obtain a relative measure of an institution's success in accomplishing a particular objective.

Two additional factors entering into this additive model are the relative weights assigned to each goal and the qualified rating given to each outcome. The goal weights are derived from ratings assigned each goal statement by those individuals who are responsible for the conduct of the programs being evaluated. On a 5-point Likert-type scale, these individuals rate the relative importance of each goal statement to their respective programs and the degree of effort they would have to expend to incorporate the expressed concept into their programs. Relative weights are then assigned to each goal statement according to the calculations depicted in Table 1.

Each outcome in this model is directly related to a specific goal statement. Just as there are numerous goals for each objective, there also are numerous outcomes for each goal. The outcomes, which constitute the data base, are "Yes" and "No" answers to specific interview questions and prescribed observations. Because it is extremely difficult to answer most of the questions with an unequivocal "Yes" or

"No," provisions were made to qualify each answer. Consequently, each answer (outcome) is rated according to the following scale:

0 = No.

3 = Yes, but evidence to support the answer is lacking.

7 = Yes, but evidence used to support the answer is questionable.

10 = Yes, there is strong evidence to support the answer.

Table 1

Goal Weight Calculations for Importance and Effort Ratings Assigned to Specific Goal Statements

If importance is given a rating of	and	effort is given a rating of,	then	the weight assigned the goal will be:
5		5		9
5		4		8
4		5		
4		4		7
5		3		
3		5		
5		2		6
2		5		
4		3		
3		4		
5		1		5
1		5		
4		2		
2		4		
3		3		
4		1		4
1		4		
3		2		
2		3		
3		1		3
1		3		
2		2		
2		1		2
1		2		
1		1		1

Once the goal weights are calculated and the data are collected, a relative measure of an institution's success in accomplishing a stated objective can then be obtained by substituting the obtained quantities into the following formula:

$$P = \frac{\sum (w_i \bar{s}_i)}{\sum w_i} \times 100$$

where: P = percent of objective achievement,

w_i = weight factor assigned to each goal statement, and

$\bar{s}_i$ = average accomplishment of each goal statement, i.e., number of questions per goal divided by the sum of the rating given those questions.

Once an institution's percent of objective achievement is obtained for each program being evaluated, comparisons can be made either on a program-by-program basis or on an institution-by-institution basis. If further analysis is required, comparisons could also be made on a goal-by-goal basis.

This model, then, satisfies three of the six points of consideration listed in Chapter I. Specifically, these points of consideration are:

Point of Consideration 3: The evaluation model must be capable of producing reliable decision-making information without relying on an experimental design.

Point of Consideration 4: Evaluation models utilized in education should be designed and developed for educational situations.

Point of Consideration 5: The data analysis procedures employed in the program evaluation model should allow for direct program comparisons.

Vocational Education Objectives

The vocational education objectives utilized in this study were formulated by The Center for Vocational and Technical Education, The Ohio State University. These objectives represent the work of The Center personnel, evaluation specialists, and advisory committees with final validation by a national survey of state directors and head state supervisors of vocational education. Because these objectives represent the concepts of leaders in the field of vocational education and because they are also sufficiently global to apply to any program at any level, these objectives were utilized as measurement indices in this study as their degree of fulfillment provides an assessment of an institution's success in meeting the vocational education needs of its student clientele. The objectives are stated as follows (Starr & Dieffenderfer, 1972):

> 1. To provide vocational education to youth and adults who will be entering the labor force and to those who seek to upgrade their occupational competencies or learn new skills.
> 2. To provide comprehensive vocational education which relates general and vocational education offerings to the vocational objectives of students.
> 3. To make vocational education increasingly accessible to those who desire it.
> 4. To provide quality vocational education which meets the vocational aspirations of people while being compatible with employment opportunities. (p. 14)

Goal Statements

The numerous functions the goal statements were called upon to fulfill in this evaluation model made their final selection an arduous task. The goal statements were designed to:

1. Produce a core of information which would yield an assessment of the extent to which the established objectives of vocational education were being achieved.
2. Reflect the vocational education intents of each institution as stated in their initial proposal to the funding agency.
3. Reflect the program decision-requirements of the funding agency.
4. Provide a basis upon which to make a full description of the intents and activities of each program.

Following a review of the goal statements included in the evaluation model developed by The Center and an indepth study of the proposals submitted to the Texas Education Agency by the various state schools/state hospitals for the purpose of establishing pilot programs in vocational education for the handicapped, a preliminary list of goal statements was formulated for this evaluation. To determine if the goal statements would satisfy the program decision-requirements of the funding agency and lead to a full description of each program's intents and activities, the preliminary list was submitted to personnel in the Division of Occupational Research and Development, Texas Education Agency, for their review and assessment. The final set of goal statements then resulted in the following:

Goal statements relative to Objective 1:

1:01 An institution offering vocational education should possess a statement of philosophy which reflects the institution's purpose and objectives relative to meeting the needs of the student clientele.

1:02 The institution should possess a financial plan which is adequate to assure the quality and continuity of the vocational education programs.

1:03 The institution should possess formalized future plans for vocational education.

1:04 The institution should utilize a general advisory committee in planning for vocational education and various occupational advisory committees to assist in developing current curriculums for each program.

Goal statements relative to Objective 2:

2:01 General education personnel, professional personnel, and vocational education personnel should work together to organize their offerings and services in relation to the vocational education program.

2:02 Specific program instruction should be based on written performance objectives which were derived from an analysis of required occupational competencies that need to be taught for a specific occupation.

2:03 There should be a continual analysis and subsequent instructor updating of the occupational competencies that need to be taught for a specific occupation.

2:04 Consumer education should be included as an integral part of the total vocational education program.

2:05 Employer-employee relations should be taught as an integral part of the total vocational education program.

2:06 Students enrolled in an effective vocational program should show evidence of change and growth in attitudes.

Goal statements relative to Objective 3:

3:01 Students with reconcilable educational deficiencies should be encouraged to enroll in the vocational programs.

3:02 Specialized remedial instruction should be made available to students who have educational deficiencies which act as serious barriers to successful program completion or job placement.

3:03 The potential number of students the vocational programs can successfully accommodate should be enrolled.

3:0[illegible] All vocational programs within the institution should be offered on a twelve-month basis.

3:05 The institution should offer a structured career guidance program which enrolls all vocational students.

Goal statements relative to Objective 4:

4:01 The instructional practices carried on in the classroom and laboratory should provide students with simulated work experiences reflective of what would be expected of them in a wage-earning situation.

4:02 Major equipment and machine acquisitions should be commensurate with the program objectives and when installed, the items should be complete with all safety devices and placed on a preventive maintenance and replacement schedule.

4:03 The vocational programs should be housed in adequate facilities that are well managed and free of health, fire, and safety hazards.

4:04 The institution should possess a formalized procedure for placing both graduates and non-graduates in an employment situation that is in or directly related to the area of their preparation.

4:05 Students in the vocational programs should be involved in cooperative or other out-of-class work experiences.

4:06 The vocational instructional staff members should be certified in the areas in which they teach and be evaluated in terms of their teaching proficiency.

4:07 Vocational instructors should use effective teaching methods, procedures, and instructional materials in the conduct of the teaching-learning process.

4:08 The institution should possess a formalized follow-up procedure which yields information relative to the adequacy, appropriateness, and effectiveness of the vocational education programs.

4:09 An institution offering vocational education should conduct an annual self-evaluation for the purpose of identifying strong and weak points as a basis for upgrading the programs.

The numbering system applied to the above stated goals was devised to indicate the relationship of the goal to an objective and to identify the series order of the goal statement. The numeral preceding the colon specifies the objective number while the numerals succeeding the colon identify the series order number of the goal statement. Each goal statement retained this identification number throughout the duration of the study.

Underlying the phrasing of each goal statement were the assumptions that many educational programs are implemented without adequate planning and forethought; therefore, evaluation should be a process which contributes to further development and stabilization as well as assessment of a program. Furthermore, as Stevenson (1973) notes:

> Those charged with responsibility for selecting evaluative criteria and those conducting evaluations must keep in mind the fact that programs will change in the direction of the stated criteria. If those conducting programs are aware of the criteria to be used in evaluation and if they believe that administration is sincere in its designation of the items, then programs will change toward these specified criteria. If a climate of mutual trust and concern can be created between administrators, evaluators, and teachers, program improvement can result. Supervisory personnel can find in individual program evaluations some very specific suggestions for program supervision and improvement. (p. 77)

For these reasons, each goal statement was phrased in a positive nature and included the verb "should" to indicate desired outcomes.

Therefore, through the meticulous selection and the veracious phrasing of each goal statement, two additional points of consideration are satisfied in the evaluation model. Specifically, these two points of consideration are:

Point of Consideration 1: An evaluation model must be capable of providing factual decision-making information to a specific audience.

Point of Consideration 2: An evaluation model must provide a means for fully describing all aspects of an educational program.

Data Base Development

In this model, data requirements were systematically derived from program objectives and goal statements. The procedure utilized to derive the data elements in a systematic manner consisted of (a) listing each goal statement, (b) listing under each goal statement the data elements required in order to determine if the goals were being achieved, and (c) listing under each data element the source of the required information. This procedure led to the identification of six sources of information, namely, institution administrators, program instructors, vocational counselors, current students, former students' employers, and evaluation team members. After considering the data elements derived through this procedure and the organizational structure of the state schools/state hospitals, it was decided that the institutional administrators could best be represented by the director of education at each institution. This decision was based on the assumption that the director of education possessed a basic knowledge of administrative requirements and operating procedures of the vocational education programs. At this point in the development of the evaluation procedures, it was also decided that the most efficient method of acquiring the required information from institutional personnel, students, and employers was through personal interviews. The basic reason for utilizing the personal interview as a data collection procedure stemmed from the possibility that auditory and visual clues such as respondents' incidental comments, facial and bodily expressions, and tone of voice could be used to assist the visitation team members in applying the appropriate rating to the data elements. Because the personal interviews were to be conducted in the respondents' institutional setting, it was determined that the visitation team members could also make the prescribed observations at the same time.

In the development of the data base (specifically step (b) above), consideration was also directed toward selecting the minimum number of data elements required to yield a reliable assessment of the extent to which the program goals were being achieved and, at the same time, provide sufficient information to describe in detail the meaningful activities associated with each program. These expectations of the data elements required that a dynamic mix of process and product criteria be obtained, a mix which would yield quantitative indicators of each institution's success in meeting the vocational education needs of its student clientele. It was postulated, that through efficient administrative practices, reliable guidance procedures, and effective instructional methods, the program goals could be achieved and the vocational education needs of the students fulfilled. Thus, the data base for this study was formed by quantifying the interviewee's responses to specific questions and by recording the visitation team members' acknowledgements of prescribed observations. Table 2 illustrates the number and type of data elements (outcomes) associated with each goal statement and with each individual or group.

The mix of process and product criteria utilized in this model covered the following general areas for each of the above mentioned groups:

1. Director of Education--questions and observations concerning the institution's philosophy and objectives of vocational education for the handicapped, evidence of future plans for vocational education, financial management of the special funds provided for the pilot programs, administrative practices relative to the conduct of the pilot programs, evidence that program and instructional staff evaluations have occurred, and evidence of administrative support for advisory committees, placement services, and follow-up procedures.
2. Vocational Counselor--questions and observations indicating the presence and continuing use of vocational information services, personal data collection, counseling services, and the existence of a program for identifying, appraising, and providing individualized remedial instruction to students who possess special personal or social handicaps.
3. Program Instructor--questions and observations concerning the efficiency and effectiveness of instruction, including the use of behavioral objectives and individualized instruction; instructor preparation and recency of work experience;

Table 2

Number and Type of Data Elements Associated with each Goal Statement by Individual or Group

Goal No.	Data Element Type	Individual or Group					Goal No. Total
		DOE[a]	INS[b]	COU[c]	STU[d]	EMP[e]	
1:01	Ques.	4					4
	Obs.	10					10
1:02	Ques.	7	6				13
	Obs.						0
1:03	Ques.	4	1				5
	Obs.	1					1
1:04	Ques.	5	6				11
	Obs.						0
					Objective 1 Total =		44
2:01	Ques.	2	8				10
	Obs.						0
2:02	Ques.		8		1		9
	Obs.		1				1
2:03	Ques.		3		2	1	6
	Obs.		2				2
2:04	Ques.		7				7
	Obs.						0
2:05	Ques.				8	4	12
	Obs.		7				7
2:06	Ques.		8		2		10
	Obs.						0
					Objective 2 Total =		64
3:01	Ques.	3	1	2			6
	Obs.						0
3:02	Ques.		5	2			7
	Obs.		3				3
3:03	Ques.	1	9				10
	Obs.		2				2
3:04	Ques.	2	2				4
	Obs.						0
3:05	Ques.		2	26	5		33
	Obs.			1			1
					Objective 3 Total =		66

Table 2 - Continued

Goal No.	Data Element Type	Individual or Group					Goal No. Total
		DOE[a]	INS[b]	COU[c]	STU[d]	EMP[e]	
4:01	Ques.		1			5	6
	Obs.		7				7
4:02	Ques.		4		1	1	6
	Obs.		4				4
4:03	Ques.		4				4
	Obs.		12				12
4:04	Ques.	5	2	1	1		9
	Obs.						0
4:05	Ques.		3				3
	Obs.						0
4:06	Ques.	7	6				13
	Obs.						0
4:07	Ques.		9				9
	Obs.		5				5
4:08	Ques.	8	2				10
	Obs.						0
4:09	Ques.	5	3				8
	Obs.						0
						Objective 4 Total -	96
Question Total		53	100	31	20	11	215
Observation Total		11	43	1	0	0	55
Total Ques. & Obs.		64	143	32	20	11	270

[a] DOE = director of education.

[b] INS = program instructor.

[c] COU = vocational counselor.

[d] STU = vocational student.

[e] EMP = former students' employers.

instructor contributions to budget planning, program planning, selection and use of advisory committees, placement services, and former student follow-up.

4. Vocational Student--generally product-type questions to determine if the students were actually receiving effective instruction and reliable guidance services.
5. Former Students' Employers--product-type questions relative to work skills and employer/employee relations.

Former students, another source of valuable evaluative data, were not inadvertently omitted from this study. Due primarily to financial restraints, former students were not included as a source of evaluative data. Because former students are few in number and dispersed throughout the entire state and because the only method of obtaining reliable information from them would be through personal interviews, the financial costs involved in contacting these individuals made such an endeavor impractical. However, two additional efficiency factors were considered in the development of the data base. Specifically, these were:

1. The time frame required for collecting data.
2. The personnel required to manage the data collections.

Thus, through an indepth analysis of the information requirements and the systematic selection of the data elements, the final point of consideration listed in the preceding chapter was fulfilled, i.e., Point of Consideration 6: The performance indices employed to determine the effectiveness of a program should be composed of both process and product criteria.

Instrument Development

Because the evaluation model formulated in this study differed substantially from previously developed models, the data requirements also differed which necessitated the development of data collection instruments designed specifically for this model. To satisfy the information requirements of this model, two types of data collection instruments were required. First, an instrument was required to obtain the importance and effort rating for each goal statement, and secondly, a set of instruments was required to obtain the interviewee's response to specific questions and the interviewer's acknowledgement of prescribed observations.

The instrument developed to obtain the importance and effort ratings was designed to be completed by the Director of Education at each of the institutions included in the evaluation study. This instrument, "Evaluation Statement Ratings" (Appendix A), contained a listing of the previously described goals and two 5-point Likert-type scales for each goal statement. The two 5-point Likert-type scales (one which ranged from little importance to great importance; the second which ranged from little effort to great effort) were utilized to obtain the importance and effort ratings from which subsequent weight factors could be calculated and assigned to each goal statement.

Once the data base was formulated, as described in the previous section, and the individual or group who possessed the desired information identified, development of the second type of instrument became a matter of changing the data element listings to questions. This set of instruments (Appendix B) consisted of the specific questions to be posed to the identified groups and the prescribed observations to be made by the visitation team members. Each instrument in this set was designed to be completed by a visitation team member as he/she interviewed a selected individual. Questions and prescribed observations were grouped according to subject and arranged in such a manner as to make the interview resemble a normal conversation. To assist the interviewer in distinguishing between questions and prescribed observations, the questions to be asked the respondents were placed at the left-hand margin and began with a verb while the prescribed observations were indented, written in sentence form, and enclosed in an outline. As a means of associating each data element with a goal statement for data processing purposes, goal numbers were placed after each question and prescribed observation.

Decisions relative to the format as well as the formation and phrasing of the specific items eventually included in this set of instruments were influenced by previously developed evaluation procedures. Primary consideration was accorded the following sources: *A System for State Evaluation of Vocational Education* (Starr & Dieffenderfer, 1972); *Instruments and Procedures for the Evaluation of Vocational/Technical Education Institutions and Programs* (American Vocational Association, 1971); *A Device for Evaluating Departments of Vocational Agriculture in Arizona* (University of Arizona, 1967);

Vocational Education Program Study #8032: Training Manual (Tobias, 1974); *Evaluative Criteria for Vocational and Technical Programs* (Reynolds, Grobman, & McGee, 1967); *Self-evaluation Guide for Local Districts for Vocational Education of Handicapped Students* (Meyer, 1972); *Handbook for Self-evaluation of Programs and Services to the Disadvantaged and the Handicapped at Community Colleges Under the Vocational Education Amendments of 1968* (Tadlock Associates, 1972); and *Evaluation for Environmental Education* (Ambry, 1972).

Establishing Content Validity of the Data Collection Instruments

In an effort to establish the content validity of the data collection instruments, aside from the systematic procedure utilized to identify the data elements, the listings of the goal statements and corresponding data elements as well as a draft of the data collection instruments were submitted to a jury of experts for their review. The composition of this jury included: Texas A&M University professors who had previously demonstrated competence in educational evaluation and who were familiar with this study; Texas Education Agency, Division of Occupational Research and Development, personnel who possessed state level administrative responsibilities for the pilot programs in vocational education for the handicapped; Texas Education Agency, Division of Special Education and Special Schools, personnel who were familiar with educational programs for the handicapped; and Texas Department of Mental Health and Mental Retardation personnel who possessed state level administrative responsibilities for the educational programs in the state schools/state hospitals.

Following a discussion with the jury members concerning the purposes and objectives of this study as well as an explanation of the proposed data collection methods, this group was asked to review the prepared materials in an effort to identify data gaps and to determine whether the information sought was actually available. Pertinent suggestions for additions, deletions, and changes were subsequently incorporated into the data collection instruments.

Test Site Selection

In the selection of the state schools/state hospitals to be included in this study, primary consideration was given to obtaining a group of institutions that (a) were geographically representative of the state, (b) provided a cross-section of the pilot programs in vocational education for the handicapped, and (c) included both state schools and state hospitals. Upon consideration of these factors, personnel in the Division of Occupational Research and Development, who were responsible for selecting the institutions to be included in this study, identified seven state schools/state hospitals. In addition, an eighth institution was identified for pilot testing purposes. The seven institutions identified for inclusion in this study offered a combined total of 17 pilot programs in vocational education for the handicapped while the institution selected for pilot testing purposes offered two programs.

Visitation Team Selection and Orientation

Very often the term "evaluation" arouses an unprecedented level of anxiety in many individuals--particularly when the individuals in charge of an educational endeavor are informed that their programs are about to be evaluated. In the design and development of this evaluation model, considerable attention was given to methods of lessening the amount of apprehension that would be experienced by those individuals conducting the educational programs to be evaluated. One method employed to decrease anxiety was to structure the interview format in such a manner that the questioning process would resemble a normal conversation. It was postulated, however, that the most effective method of reducing "overall" apprehension would be to collect the required evaluative information in the least amount of time. Thus, the evaluation team approach to the data collection process was utilized in this model. The generalization was that, if several individuals could simultaneously gather information, the data collection process would be greatly expedited and the amount of time the institutional representatives would have to contribute to the evaluation process would be shortened considerably; thus, resulting in an "overall" decrease in the amount of anxiety generated by the evaluation.

Another reason for utilizing an evaluation team was to include personnel in the evaluation process who were knowledgeable in the area of mental health/mental retardation and who were acquainted with the organizational structure and the operating procedures of the state schools/state hospitals. After considering these factors and the amount of data to be collected at each institution, it was determined that a team composed of four individuals would be the most efficient in this setting. It was also determined that the team would be most effective if it was representative of vocational education, the Texas Department of Mental Health and Mental Retardation, and the Texas Education Agency, Division of Occupational Research and Development and Division of Special Education and Special Schools. This researcher became the vocational education representative while personnel from the above mentioned agencies completed the team membership. Due to the compressed schedule of the on-campus visits to the various state schools/state hospitals, it was necessary to select two individuals from each of the agencies to serve on the evaluation team.

Following the selection of the visitation team members, an orientation meeting was held in the offices of the Division of Occupational Research and Development for the purpose of acquainting each individual with the evaluation procedures. At this meeting, the purposes and objectives of the study were discussed and the operational procedures of the evaluation model were explained. Each data collection instrument and each data element contained therein was reviewed for the purpose of removing any ambiguities and determining the degree of evidence that would be required to qualify each question and observation contained in the specific data collection instruments. The interviewing techniques presented in the booklet entitled

Vocational Education Program Study #8022: Training Manual, which were utilized by a private research firm, Decision Making Information, in conducting a national survey of vocational education programs for the handicapped, were adopted for this study and were discussed at this time. Special emphasis was placed on probing techniques (Tobias, 1974) which are ". . . the methods of questioning used by interviewers to aid respondents in clarifying any answers that are incomplete, vague, or ambiguous" (p. 9).

Interviewing assignments were also made at this orientation meeting. To add reliability to the study, it was determined that individuals possessing similar responsibilities at each of the state schools/state hospitals would be interviewed by the same visitation team member. Thus, after also considering the logistics of this evaluation model and the expertise possessed by the various team members, the following interviewing assignments were made:

1. Texas Department of Mental Health and Mental Retardation personnel would interview the Director of Education at each institution.
2. Texas Education Agency, Division of Special Education and Special Schools, personnel would interview students.
3. Texas Education Agency, Division of Occupational Research and Development, personnel would interview program instructors.
4. This writer would interview vocational counselors and former students' employers.

Pilot Testing the Evaluation Model

In an effort to identify any unforeseen problems inherent in the design and proposed operational procedures of this evaluation model, a pilot test was conducted at one of the state schools/state hospitals. The institution selected for the pilot test was conducting pilot programs in vocational education for the handicapped which closely replicated the offerings of the seven institutions identified for inclusion in this study. The evaluation model pilot test utilized the exact data collection and analysis procedures that were to be employed in evaluating the pilot programs in vocational education for the handicapped at the other seven institutions.

Following the data collection process, the visitation team members, along with an administrator from the pilot test institution, met to discuss the data collection procedures and review the instruments. Pertinent suggestions, offered by this group, relating to procedural changes and inherent alterations were subsequently incorporated into the evaluation model.

On-campus Visitations

The visitation schedule, arranged by personnel in the Division of Occupational Research and Development, Texas Education Agency, called for on-campus visits to the seven state schools/state hospitals to be made between March 17, 1975, and April 18, 1975. Prior to the institutional visits, a letter was sent to the superintendent of each state school/state hospital specifying the actual date of the visit and outlining the general procedures to be followed by the evaluation team. Because this letter originated from the Texas Education Agency, the individual representing the Division of Occupational Research and Development was the team spokesman.

The on-campus visitations, which took from four to six hours to complete at each institution, followed the format outlined below:

1. A meeting with the superintendent of the institution for purposes of: (a) exchanging introductions, (b) discussing the purpose of the evaluation and the proposed disposition of the results, (c) explaining the procedures to be followed during the visit, and (d) identifying the personnel to be interviewed.
2. The actual collection of the data through personal interviews and prescribed observations.
3. Visitation team meeting at which time the data collection instruments were reviewed for completeness and general observations discussed.
4. A second meeting with the superintendent for the purpose of discussing general observations made by the visitation team members.

Generally, the Director of Education and the Vocational Counselor were interviewed in their offices while the program instructors and students were interviewed in their actual classroom/laboratory setting.

A minimum of three students per program were interviewed. Former students' employers were interviewed by telephone. At each institution, the names of former students and their employers were obtained either from the institution counselor working directly with the program or from a Texas Rehabilitation Commission counselor located at the state school/state hospital. A minimum of two former students' employers were interviewed for each program and, when possible, the interviews were made at the time of the institutional visitation.

Data Analysis and Processing

Data analysis requirements of this evaluation model necessitated the use of two computer programs. One program was required to calculate the goal weights, and a second program was required to calculate an institution's objective achievement rate. Both programs were written in FORTRAN IV for a WATFIV compiler.

The computer program developed to calculate the goal weights (Appendix C) reads in as data input the importance and effort ratings assigned to each goal statement by the director of education at each institution. Printed output for this program included not only the calculated goal weights but also the range, mean, and standard deviation for each rating scale.

Data input for the second program (Appendix D), which was utilized to calculate an institution's objective achievement rate, included the goal weights that were calculated in the previous program and the ratings used to qualify each interview question and prescribed observation. Printed output for this program included the name of the institution and the title of the vocational education program; and, for each objective, the goal numbers, the goal weights, the number of questions relating to each goal, the sum of the ratings assigned to each goal, and finally, as a percentage, the institution's objective achievement rate.

To simplify the data coding process, a special Data Tabulation Sheet (Appendix E) was prepared. This sheet was utilized to organize the data into a form suitable for keypunching. Coding procedures required that a Data Tabulation Sheet be completed for each program. Because the data contained in the Director of Education Questionnaire and the Vocational Counselor Questionnaire applied to all programs in a particular state school/state hospital, these data were recorded identically on each program sheet for a given institution. In situations where more than one questionnaire was completed for a particular group (vocational students and former students' employers), the average rating for each question was entered on the Data Tabulation Sheet.

Generally, the data generated by this evaluation model would not require analysis beyond the capabilities of the two above mentioned programs. With the determination of an institution's objective achievement rate and the analysis of each goal, sufficient evidence would be present to judge an institution's rate of success in meeting the vocational education needs of its clientele. However, for this particular study, it was deemed necessary to determine the extent to which the state schools/state hospitals, as a conglomerate group, were achieving the specified goals and established objectives.

To obtain an analysis of the group, a statistical routine described by Veldman (1967) was utilized. This routine, Distribution Statistics and Standard Scoring (DISTAT), provides the following descriptive statistics: (a) number of responses to the variable, (b) arithmetic mean, (c) standard deviation as a population parameter, (d) standard deviation as a sample statistic, (e) standard error of the mean (population parameter), (f) standard error of the mean (sample statistic), (g) sum of all scores, (h) sum of all squared scores, (i) critical ratio for skewness, and (j) critical ratio for kurtosis. Data input for this program consisted of the institutions' objective achievement rate for each program and the institutions' average accomplishment of each goal statement, i.e., number of questions per goal divided by the sum of the ratings given those goals. Both the institutions' objective achievement rate and the institutions' average goal accomplishment were obtained from one of the computer programs written specifically for this evaluation model. Although it was possible to take the objective achievement rate directly from each printout, an additional print statement had to be added to obtain the average goal accomplishment. All data processing for the above analyses was performed by the Texas A&M University Data Processing Center using an IBM 360/65 computer system.

Summary

Based on theoretical postulates derived from the writings of evaluation theorists, an evaluation model capable of yielding quantitative measurements of an educational institution's success in accomplishing established objectives of vocational education was developed in this study. This model, which evolved from a skeletal outline of basic evaluation strategies developed by The Center for Vocational and Technical Education at The Ohio State University, was field tested by conducting an evaluation of pilot programs in vocational education for the handicapped in selected state schools and state hospitals in Texas.

In this study, primary attention was directed toward the identification of goals which were capable of interpreting the established objectives of vocational education and the formulation of a data base with the capacity to yield reliable information relative to the extent to which the goals were achieved. By utilizing a systematic procedure to identify the goals and define the data base, it was determined that measurable indices of program effectiveness could be acquired from six sources. These sources were identified as institution administrators, program instructors, vocational counselors, current students, former students' employers, and evaluation team members. It was also determined that the most efficient method of obtaining the desired information from these sources would be through the use of personal interviews and prescribed observations. Thus, utilizing prepared data collection instruments, an evaluation team proceeded to test the evaluation model via on-campus visits to selected state schools/state hospitals.

CHAPTER III

FINDINGS

The findings reported in this chapter are addressed to the two contributing objectives of the study, namely:

1. To obtain a relative measure of selected state schools'/state hospitals' success in accomplishing established objectives of vocational education.
2. To test the model and the related processes necessary for evaluating pilot programs in vocational education for the handicapped.

Consequently, this chapter has been subdivided into seven sections. The first five sections present findings relative to the formulation of the goal weights and the success experienced at the various state schools/state hospitals in accomplishing established objectives of vocational education. The sixth section presents evaluation team members' observations relative to the testing of the evaluation model as was accomplished by utilizing the model and its related processes to determine the degree of success experienced at the various institutions in accomplishing the established objectives of vocational education. A summary of all findings and observations are then presented in a final section.

Findings Relative to the Goal Statement Ratings

Weight factors, derived from the importance and effort ratings assigned the goal statements, were utilized in the calculation of the objective achievement percentages for the purpose of permitting those individuals who were responsible for the conduct of the pilot programs to provide input into the evaluation proceedings. These weight factors allowed various goals to contribute proportionate amounts to the objective achievement percentages, i.e., a goal with a weight factor of 8 contributed proportionately more to an objective achievement percentage than did a goal with a weight factor of 5. Thus, the various weight factors represent the significance of the concept expressed in the goal statement relative to the pilot programs in vocational education for the handicapped as conceived by the directors of education at the state schools/state hospitals included in this study.

The weight factors, as calculated from the importance and effort ratings assigned the goal statements by the directors of education, are displayed in Table 3. Although the weight factors could have ranged from 1 to 9, their range only extended from 5 to 8 indicating that the directors of education viewed the concepts expressed in the goal statements as significant to the pilot programs in terms of desirable vocational education program developments. In fact, nine goals received a weight factor of 8, eleven goals received a weight factor of 7, three goals received a weight factor of 6, and only one goal received a weight factor of 5.

In line with a cited limitation of this study, i.e., those goal statements which more nearly depicted the operational procedures of

Table 3

Weight Factors as Derived from Importance and Effort Ratings of the Goal Statements

Goal No.	Goal Statement	Rating	Mean	S.D.	Weight Factor
1:01	An institution offering vocational education should possess a statement of philosophy which reflects the institution's purpose and objectives relative to meeting the needs of the student clientele.	Importance	4.57	0.53	6
		Effort	2.86	1.21	
1:02	The institution should possess a financial plan which is adequate to assure the quality and continuity of the vocational education programs.	Importance	5.00	0.00	8
		Effort	4.29	1.11	
1:03	The institution should possess formalized future plans for vocational education.	Importance	4.57	0.53	7
		Effort	3.14	1.21	
1:04	The institution should utilize a general advisory committee in planning for vocational education and various occupational advisory committees to assist in developing current curriculums for each program.	Importance	3.71	0.95	5
		Effort	2.71	1.38	
2:01	General education personnel, professional personnel, and vocational education personnel should work together to organize their offerings and services in relation to the vocational education program.	Importance	4.71	0.49	7
		Effort	3.00	1.63	
2:02	Specific program instruction should be based on written performance objectives which were derived from an analysis of required occupational competencies.	Importance	4.14	0.69	6
		Effort	3.14	0.90	

Table 3 - Continued

Goal No.	Goal Statement	Rating	Mean	S.D.	Weight Factor
2:03	There should be a continual analysis and subsequent instructor updating of the occupational competencies that need to be taught for a specific occupation.	Importance	4.86	0.38	8
		Effort	3.86	1.35	
2:04	Consumer education should be included as an integral part of the total vocational education program.	Importance	4.29	1.11	7
		Effort	3.57	1.13	
2:05	Employer-employee relations should be taught as an integral part of the total vocational education program.	Importance	4.86	0.38	7
		Effort	3.43	1.62	
2:06	Students enrolled in an effective vocational program should show evidence of change and growth in attitudes.	Importance	4.86	0.38	8
		Effort	3.71	1.38	
3:01	Students with reconcilable educational deficiencies should be encouraged to enroll in the vocational program.	Importance	4.57	0.53	7
		Effort	3.71	1.89	
3:02	Specialized remedial instruction should be made available to students who have educational deficiencies which act as serious barriers to successful program completion or job placement.	Importance	5.00	0.00	8
		Effort	4.14	1.57	
3:03	The potential number of students the vocational programs can successfully accommodate should be enrolled.	Importance	4.71	0.49	7
		Effort	3.43	1.51	
3:04	All vocational programs within the institution should be offered on a twelve-month basis.	Importance	4.71	0.49	7
		Effort	3.29	1.70	

Table 3 - Continued

Goal No.	Goal Statement	Rating	Mean	S.D.	Weight Factor
3:05	The institution should offer a structured career guidance program which enrolls all vocational students.	Importance	4.00	1.00	6
		Effort	3.14	0.90	
4:01	The instructional practices carried on in the classroom and laboratory should provide students with simulated work experiences reflective of what would be expected of them in a wage-earning situation.	Importance	4.86	0.38	8
		Effort	4.29	1.11	
4:02	Major equipment and machine acquisitions should be commensurate with the program objectives and when installed, the items should be complete with all safety devices and placed on a preventive maintenance and replacement schedule.	Importance	4.86	0.38	8
		Effort	3.86	1.35	
4:03	The vocational programs should be housed in adequate facilities that are well managed and free of health, fire, and safety hazards.	Importance	4.86	0.38	8
		Effort	3.71	1.38	
4:04	The institution should possess a formalized procedure for placing both graduates and nongraduates in an employment situation that is in or directly related to the area of their preparation.	Importance	4.86	0.38	8
		Effort	4.00	1.00	
4:05	Students in the vocational programs should be involved in cooperative or other out-of-class work experiences.	Importance	4.71	0.49	8
		Effort	3.86	1.07	
4:06	The vocational instructional staff members should be certified in the areas in which they teach and be evaluated in terms of their teaching proficiency.	Importance	4.71	0.76	7
		Effort	3.29	1.50	

Table 3 - Continued

Goal No.	Goal Statement	Rating	Mean	S.D.	Weight Factor
4:07	Vocational instructors should use effective teaching methods, procedures, and instructional materials in the conduct of the teaching-learning process.	Importance	5.00	0.00	7
		Effort	3.29	1.38	
4:08	The institution should possess a formalized follow-up procedure which yields information relative to the adequacy, appropriateness, and effectiveness of the vocational education programs.	Importance	4.57	0.53	7
		Effort	3.71	1.38	
4:09	An institution offering vocational education should conduct an annual self-evaluation for the purpose of identifying strong and weak points as a basis for up-grading the programs.	Importance	4.86	0.38	7
		Effort	3.00	1.53	

the pilot programs probably received higher ratings (p. 10); Goal 1:04, which dealt with the appointment and utilization of advisory committees, did receive the smallest weight factor (5) and the lowest average achievement score (54 percent) as depicted in Tables 3 and 4, respectively. Also, seven of the nine goals which received weight factors of 8 also received achievement percentage scores in the 85 to 95 percent bracket.

The directors of education at the various institutions included in this study rated the importance of the concept expressed in each goal statement relatively high on the 5-point, Likert-type rating scale as only one out of the 24 goals had a mean rating of less than 4.00 and three goals had a mean of 5.00. The standard deviations of less than 1.00 for 22 out of the 24 importance ratings also indicated that the directors of education substantially agreed that the concepts expressed in the goal statements should become a functional part of the pilot programs in vocational education for the handicapped. As noted by the larger standard deviations for the effort ratings, less agreement existed among the directors of education as to the degree of effort required to overcome obstacles such as cost of implementation, staff resistance, and lack of facilities and equipment that may have hindered the implementation of the expressed concept into the pilot programs. However, the effort rating means, which were substantially smaller than the importance rating means for each goal, indicate that any obstacles could be or have been overcome. In fact, only three out of the 24 goal statements received effort rating means greater than 4.00.

Findings Relative to Vocational Education Objective 1

Objective 1 addresses the concept of providing vocational education to those individuals who can benefit from the instruction by becoming better qualified to enter the world of work. In this evaluation model, providing vocational education is interpreted to mean more than simply conducting skill development classes. Providing vocational education also means creating an institutional atmosphere that is conducive to the continual growth, development, and further refinement of the vocational education programs. Thus, the goal statements associated with Objective 1 were intended to exemplify various aspects of a favorable institutional atmosphere; and, the degree to which Objective 1 and its concomitant goals were fulfilled (Table 4) was interpreted as an indication of the various institutions' success in creating this atmosphere.

Although the Objective 1 achievement scores ranged from 44 to 90 percent (Table 4), the average achievement score was 75 percent which indicates that the state schools/state hospitals included in this study were seriously attempting to create an institutional atmosphere conducive to the continual growth, development, and refinement of the pilot programs in vocational education for the handicapped. A significant contributor to this achievement score was the 92 percent average achievement score for Goal 1:02. This substantial achievement score indicates that the special funds provided for the pilot programs in vocational education were controlled through accountable financial management systems which met the approval of most individuals involved.

As represented by the range of achievement scores relative to Goals 1:01, 1:03, and 1:04, the degree to which the seven institutions included in this study fulfilled these goals varied considerably. A statement of philosophy which reflects an institution's purpose and objectives relative to meeting the vocational education needs of the student clientele was produced at each institution (Goal 1:01). However, in several instances it was not clearly evident how the objectives were to be realized or that they were based on an analysis

Table 4

Achievement Percentages Obtained by the State Schools/State Hospitals Relative to Objective 1 and its Associated Goals

Objective 1 To provide vocational education to youth and adults who will be entering the labor force and to those who seek to upgrade their occupational competencies or learn new skills.

Goal No.	Goal Statement	Number of Outcomes	Range of Achievement (Percent)	Average Achievement (Percent)
1:01	An institution offering vocational education should possess a statement of philosophy which reflects the institution's purpose and objectives relative to meeting the needs of the student clientele.	14	38 - 91	71
1:02	The institution should possess a financial plan which is adequate to assure the quality and continuity of the vocational education programs.	13	77 - 100	92
1:03	The institution should possess formalized future plans for vocational education.	6	18 - 100	75
1:04	The institution should utilize a general advisory committee in planning for vocational education and various occupational advisory committees to assist in developing current curriculums for each program.	11	0 - 97	54
	Objective 1 Achievement	44	44 - 90	75

of manpower needs or job opportunities available to the clientele the institution was expected to serve. Evidence of future plans for vocational education (Goal 1:03) at the state schools/state hospitals varied from the near absence of any future planning to formalized documents, developed through group meetings, which included lists of priorities and anticipated budgets. However, as indicated by the average achievement score of 75 percent for Goal 1:03, most institutions did possess definite future plans for vocational education.

The wide range of achievement scores and the average achievement score of 54 percent for Goal 1:04 indicates that vocational education advisory committees are not used extensively in the state schools/state hospitals included in this study. Although it is stated in Section 3.22-2 of the Texas State Plan for Vocational Education that each local education agency "will establish local vocational advisory committees to provide advice relating to the assessment of vocational needs and planning, conducting, and evaluating the quality and effectiveness of vocational programs, services, and activities" (Texas Education Agency, 1973, p. 72), this has not been the case in a number of state schools/state hospitals. However, either a general advisory committee or specific program advisory committees had been appointed in a majority of the institutions. In many cases, though, evidence was lacking to suggest effective utilization of the advisory committees as it was noted that the committees seldom met, minutes of the meetings were not filed, and the institutions' responses to recommendations made by the advisory committees were not recorded.

Findings Relative to Vocational Education Objective 2

General education, often defined as that education which allows an individual to acquire the ability (and confidence in that ability) to cope with one's environment in today's society, must be an integral part of a well-planned, well-executed vocational education program. It is assumed in this evaluation model that vocational education and general education are complementary to and necessary for each other. The totality of general education and vocational education received by each student will enable the individual to cope confidently and successfully with his environment. Objective 2 and its concomitant goal statements (Table 5) are addressed to the expected relationship between vocational and general education.

As evidenced by the average achievement score of 83 percent for Objective 2 (Table 5), it is apparent that an effort was being made at the state schools/state hospitals included in this study to complement education for earning a living with education for living. This point was further substantiated by the average achievement score of 94 percent for Goal 2:01 which indicated that the general education, professional, and vocational education personnel at each institution had cooperated in providing their respective services and offerings in relation to the vocational education programs. However, in a number of instances the program instructors expressed doubt as to whether a number of students placed in the various pilot programs could actually succeed in the occupations for which instruction was offered.

An analysis of the outcome ratings which contributed to the average achievement score of 88 percent for Goal 2:02 revealed that specific program instruction in most cases was based on written performance objectives. It was not apparent, though, that the students

Table 5

Achievement Percentages Obtained by the State Schools/State Hospitals Relative to Objective 2 and its Associated Goals

Objective 2 To provide comprehensive vocational education which relates general and vocational education offerings to the vocational objectives of students.

Goal No.	Goal Statement	Number of Outcomes	Range of Achievement (Percent)	Average Achievement (Percent)
2:01	General education personnel, professional personnel, and vocational education personnel should work together to organize their offerings and services in relation to the vocational education program.	10	80 - 100	94
2:02	Specific program instruction should be based on written performance objectives which were derived from an analysis of required occupational competencies.	10	69 - 100	88
2:03	There should be a continual analysis and subsequent instructor updating of the occupational competencies that need to be taught for a specific occupation.	8	58 - 90	77
2:04	Consumer education should be included as an integral part of the total vocational education program.	7	0 - 100	56
2:05	Employer-employee relations should be taught as an integral part of the total vocational education program.	19	64 - 99	88
2:06	Students enrolled in an effective vocational program should show evidence of change and growth in attitudes.	10	87 - 100	93
	Objective 2 Achievement	64	72 - 97	83

understood the objectives or that data were available to indicate individual student progress toward the accomplishment of the performance objectives. The appropriateness of the performance objectives, as revealed by the individual program instructor's efforts to include instruction on new and emerging occupational competencies into the pilot programs in vocational education was reflected in Goal 2:03. An analysis of the outcome ratings relative to this goal disclosed the fact that most vocational program instructors have had recent employment experiences in their areas of specialization although a large majority of the instructors did not hold memberships in professional organizations relative to their teaching fields.

The wide range of achievement scores relative to Goal 2:04 (0 - 100 percent) indicated that consumer education was an integral part of some vocational education programs and completely neglected in others. Goal 2:04 was included in this evaluation model because many leaders in the field of vocational education are of the opinion that a vocational student is not adequately prepared for employment until he/she has gained some understanding of the workings, values, and institutions of the American economy (Evans, 1971).

Goals 2:05 and 2:06, which addressed the two closely related concepts of employer-employee relations and development of student attitudes, were both substantially fulfilled as indicated by the respective average achievement scores of 88 and 93 percent. Although many of the students who were interviewed were not cognizant of having received instruction relative to employer-employee relations, vocational program instructors displayed evidence of having included such instruction in the pilot programs. Also, former students' employers who were interviewed were highly complimentary of the employer-employee relationships they had experienced with former students of the pilot programs in vocational education for the handicapped.

Findings Relative to Vocational Education Objective 3

Objective 3 concerns making vocational education available to as many people as possible. This concept does not mean that students should be compelled to make final, unchangeable career decisions; instead, it means that schools should provide a setting which encourages vocational decision making. It is assumed in this evaluation model, as illustrated by the goal statements relative to Objective 3 (Table 6), that students can make rational vocational decisions if they are informed of occupational opportunities and if they are given proper support and encouragement. This, of course, requires a career guidance program that is based on student needs and a vocational education program that is capable of meeting these needs.

In each state school included in this study, the educational and social needs of the students were determined by an interdisciplinary team utilizing the "Behavioral Characteristics Progression" (BCP) charts. Interdisciplinary teams were generally composed of a student's unit director and vocational program instructor as well as a psychologist, a social worker, a medical doctor, and an individual representing

Table 6

Achievement Percentages Obtained by the State Schools/State Hospitals Relative to Objective 3 and its Associated Goals

Objective 3 To make vocational education increasingly accessible to those who desire it.

Goal No.	Goal Statement	Number of Outcomes	Range of Achievement (Percent)	Average Achievement (Percent)
3:01	Students with reconcilable educational deficiencies should be encouraged to enroll in the vocational program.	6	83 - 100	96
3:02	Specialized remedial instruction should be made available to students who have educational deficiencies which act as serious barriers to successful program completion or job placement.	10	88 - 100	98
3:03	The potential number of students the vocational programs can successfully accommodate should be enrolled.	12	44 - 100	85
3:04	All vocational programs within the institution should be offered on a twelve-month basis.	4	80 - 100	98
3:05	The institution should offer a structured career guidance program which enrolls all vocational students.	34	69 - 92	85
	Objective 3 Achievement	66	83 - 97	93

the school's recreation department. By utilizing the BCP charts, which were composed of behavioral strands on the vertical axis and behavior characteristics within each strand on the horizontal axis, the interdisciplinary team was able to plot an individual's progress toward the acquisition of specific skills and, when appropriate, prescribe remedial instruction.

The utilization of the interdisciplinary team approach and the BCP charts in the state schools and the use of the comprehensive treatment teams in the state hospitals contributed significantly to the Objective 3 achievement score of 93 percent as depicted in Table 6. This objective achievement score was the result of the exceptional average achievement scores for each goal associated with Objective 3 and is an indicator of the success experienced at each institution in identifying and appraising the social and educational needs of the student clientele. The Objective 3 achievement score was also indicative of the success experienced at each institution in providing specialized, remedial instruction for students who possessed identified social and educational deficiencies that may have acted as barriers to successful program completion or job placement. Thus, the range of achievement scores relative to Objective 3 and its associated goals do not represent the existence or non-existence of career guidance programs based on student needs and vocational education programs capable of meeting those needs, but represent the degree to which the programs appeared to be fulfilling the identified needs of the student clientele.

The variance in the degree to which student needs were being fulfilled is portrayed by the relatively wide range of achievement scores for Goals 3:03 and 3:05. These ranges in achievement scores were primarily due to (a) the possibility that the range of vocational education programs was insufficient to meet the expressed needs of the student clientele (Goal 3:03) and (b) the limited use of vocational information services (Goal 3:05). A substantial number of institutional personnel who were interviewed expressed concern about the limited range of pilot programs offered at the state schools/state hospitals and many of the students who were interviewed further substantiated this concern with their expressions of doubt as to desiring future employment in the occupations for which they were receiving instruction. Directly related to the students' expressions of doubt was the limited use of vocational information services. The analysis of the outcome ratings relative to Goal 3:05 revealed that in a substantial number of institutions included in this study occupational information relative to topics such as job characteristics, employment conditions, and worker qualifications was seldom collected and used as a means of assisting students in making informed career decisions.

Findings Relative to Vocational Education Objective 4

In this evaluation model, to provide quality vocational education is interpreted to mean providing vocational education programs that are both efficient and effective. In this case efficiency does not refer to monetary cost per unit of instruction nor to the amount of student learning per unit of time; rather, efficiency refers to the question, "Are students being taught the things they must know and do to become gainfully employed in a recognized occupation, or is a large part of what they are learning only things they need to know in order to succeed in the training program?" Several "efficiency indicators" are inherent in the goal statements pertaining to Objective 4 (Table 7): namely, the curriculum content aspect of Goal 4:01, the ease and longevity of job placements as verified by former student follow-up studies, and the utilization of self-evaluation results. While program efficiency refers to curriculum content, program effectiveness, on the other hand, refers to the degree to which desired learner outcomes are achieved. Objective 4 goal statements relative to instructional practices and procedures, equipment and facilities utilization, and instructional staff preparation are intended to depict program effectiveness.

The state schools'/state hospitals' success in providing quality vocational education is depicted in Table 7 by the Objective 4 average achievement score of 79 percent. The range of achievement scores relative to Objective 4 (66 - 96 percent) indicates that various institutions included in this study were more successful than others in providing quality vocational education programs for the handicapped. Major findings which were primarily responsible for the Objective 4 achievement score of 79 percent are reported as follows on a goal by goal basis:

Goal 4:01 Evidence collected relative to this goal indicated that student learning experiences in most of the pilot programs were directly related to the skill and knowledge requirements of the occupations for which instruction was being offered. However, a

Table 7

Achievement Percentages Obtained by the State Schools/State Hospitals Relative to Objective 4 and its Associated Goals

Objective 4 To provide quality vocational education which meets the vocational aspirations of people while being compatible with employment opportunities.

Goal No.	Goal Statement	Number of Outcomes	Range of Achievement (Percent)	Average Achievement (Percent)
4:01	The instructional practices carried on in the classroom and laboratory should provide students with simulated work experiences reflective of what would be expected of them in a wage-earning situation.	13	49 - 99	85
4:02	Major equipment and machine acquisitions should be commensurate with the program objectives and when installed, the items should be complete with all safety devices and placed on a preventive maintenance and replacement schedule.	10	73 - 99	89
4:03	The vocational programs should be housed in adequate facilities that are well managed and free of health, fire, and safety hazards.	16	57 - 100	88
4:04	The institution should possess a formalized procedure for placing both graduates and nongraduates in an employment situation that is in or directly related to the area of their preparation.	9	70 - 100	85
4:05	Students in the vocational programs should be involved in cooperative or other out-of-class work experiences.	3	0 - 100	67

Table 7 - Continued

Goal No.	Goal Statement	Number of Outcomes	Range of Achievement (Percent)	Average Achievement (Percent)
4:06	The vocational instructional staff members should be certified in the areas in which they teach and be evaluated in terms of their teaching proficiency.	13	74 - 95	85
4:07	Vocational instructors should use effective teaching methods, procedures, and instructional materials in the conduct of the teaching-learning process.	14	66 - 100	81
4:08	The institution should possess a formalized follow-up procedure which yields information relative to the adequacy, appropriateness, and effectiveness of the vocational education programs.	10	36 - 100	71
4:09	An institution offering vocational education should conduct an annual self-evaluation for the purpose of identifying strong and weak points as a basis for up-grading the programs.	8	9 - 93	55
	Objective 4 Achievement	96	66 - 96	79

limited number of former students' employers who were interviewed indicated that the work produced by some of their employees was only marginally satisfactory; thus, additional on-the-job supervision was required. At one institution included in this study, no former students could be located who were employed in an occupation for which they had received training; thus, it was impossible to obtain employer verification that the occupational competencies required of an individual to become employable were actually being taught.

Goal 4:02 Although several pilot programs were found to be lacking somewhat in machines and equipment, the major equipment items utilized at all institutions appeared to be in accordance with the instructional objectives of the various programs and, in most instances, representative of what is found in industry. However, at a substantial number of institutions it was not determined that the final selection of the major equipment items was based, in part, on the recommendations of the various advisory committees; and, a number of former students' employers indicated that their new employees required substantial retraining before they could become occupationally competent.

Goal 4:03 Facilities housing the pilot programs at each institution were well managed and relatively free of health, fire, and safety hazards. However, the 57 to 100 percent range in achievement scores for this goal provides an indication of the variance found in the adequacy of the facilities. Although many facilities had almost picturesque classroom/laboratory areas, several facilities were found lacking work stations and materials and equipment storage areas. It was also noted that a number of laboratory areas lacked an approved system of color dynamics and appropriate floor markings around power driven machines.

Goal 4:04 Job placement functions at a majority of the institutions included in this study consisted of a cooperative effort between the institution and the Texas Rehabilitation Commission. Generally, a Texas Rehabilitation Commission counselor, located at the institution, was primarily responsible for placing students in employment situations; thus, at most institutions job placement was not an integral part of the pilot programs and vocational education instructors were not actively involved in placement activities. The degree of success experienced at the various institutions in placing students in employment situations that were in or directly related to the students' area of preparation appeared to be dependent upon the vocational education programs offered and the degree to which institutional personnel who were directly involved with the pilot programs were also involved with the placement activities. For instance, a significant proportion of the students who had been enrolled in food service programs were employed in occupations directly related to their area of instruction; whereas a large number of students who had been enrolled in various other programs were not employed in occupations that were even remotely related to their area of preparation. Typical of a number of pilot programs was one where only three out of an approximate total of 85 individuals who had been enrolled were found employed in occupations which were in or directly related to their area of preparation. Also, those institutions establishing job placement procedures in addition to those offered by the Texas Rehabilitation Commission appeared to have experienced greater success in job placement than did those institutions relying entirely on the Texas Rehabilitation Commission for student placement in employment situations.

Goal 4:05 Because U.S. Department of Labor guidelines fail to interpret the difference between skill-development training and wage-earning work, out-of-class work experiences at most institutions have been severely curtailed. Although, as noted by the range of achievement scores for this goal (0 - 100 percent), out-of-class work experiences were still being utilized to supplement classroom instruction at a few institutions.

Goal 4:06 An analysis of the outcome ratings relative to this goal revealed that all but one of the various program instructors held state certification in the area in which they teach. Vocational program instructors at each institution were also evaluated in terms of their teaching proficiency. Thus, the range of achievement scores for this goal (74 - 95 percent) represents the degree to which the personnel evaluations included such practices as involving the program instructors in the formulation of the personnel evaluation plan, planning in-service education on the basis of the personnel evaluations, and assessing the capabilities of the vocational staff members in terms of curricular needs.

Goal 4:07 Because Goal 4:07 represented numerous facets relative to teaching methods and procedures and instructional materials, findings pertaining to this goal are presented in the form of a listing. The range of achievement scores relative to this goal (66 - 100 percent) indicates that a program by program variance existed in the outcome ratings; therefore, the following list represents general findings relative to Goal 4:07. These findings are:

a. Instructional materials were accurate in content and reflected current occupational knowledge and practices.

b. Classroom and laboratory activities were coordinated in terms of meeting the instructional objectives of the vocational education programs.

c. A sufficient quantity and variety of equipment and materials were available to facilitate a multi-media approach in the instructional processes.

d. Student learning activities were organized in such a manner that individualized instruction, when appropriate, was available to all students.

e. Supplementary instructional aids and teaching devices were utilized to provide for special interests or learning problems.

f. Sufficient space and equipment were provided for students to pursue independent study.

g. Written lesson plans were prepared and real or visual materials were utilized with each unit of instruction.

h. A satisfactory system of checking, servicing, and storing tools and materials existed.

i. Appropriate clothing was worn by the instructors and students when working in the laboratory areas.

j. The reading level of written instructional materials did not appear to be keyed to the reading competence of the students.

k. Evidence of individual student progress toward acquiring job skilis was not recorded.

l. Activities such as field trips and on-site visits were not used as a method of instruction.

m. Resource people from the communities were not utilized in the instructional processes.

Goal 4:08 As evidenced by the range of achievement scores relative to this goal (36 - 100 percent), attempts to follow the progress of former students varied considerably from institution to institution. Former student follow-up records at several institutions were exceptionally complete and did reflect information relative to the adequacy, appropriateness, and effectiveness of the pilot programs. However, at a number of other state schools/state hospitals it was noted that former student follow-up was not an integral part of the pilot programs. Vocational education instructors were not directly involved with follow-up activities, and former students' employers had not been surveyed in an effort to assemble information concerning the effectiveness of the pilot programs in preparing handicapped individuals for gainful employment.

Goal 4:09 Evidence collected indicated that self-evaluations of the pilot programs were conducted at the institutions included in this study. However, as reflected by the average achievement score of 55 percent for this goal, a majority of the self-evaluations were conducted on a very informal basis. Consequently, it was generally found that final reports were not filed and vocational program instructors and advisory committee members were not directly involved in the self-evaluation activities.

Evaluation Team Members' Observations Relative to the Utility of the Evaluation Model

As a form of meta-evaluation, the visitation team members, exclusive of this researcher, were asked to prepare a statement regarding their perceptions as to the appropriateness of the evaluation model developed in this study in terms of assessing the effectiveness of the pilot programs in preparing handicapped individuals for gainful employment. These statements follow:

> It was my pleasure to have recently participated as a member of the team evaluating Vocational Education for the Handicapped Programs in State Schools and Hospitals which operate under the jurisdiction of the State Department of Mental Health and Mental Retardation.
>
> Based on 17 years of experience in the field of vocational education, it is my opinion that the final results of the evaluation, which I have read, present a true and accurate picture of the "State of the Art" as it exists in the institutions I visited.
>
> Furthermore, it is my belief that the model utilized could lead to a new and unique solution to the nationwide problem of evaluating vocational education. One of the model's strongest implications in this respect is that it could be equally effective, with very little modification, in all facets of vocational education including Agriculture, Home Economics, Industrial, Distributive, Office, and Health programs for handicapped, educationally disadvantaged, and regular students at the middle school, high school, and post secondary level of instruction.
>
> It is my hope that this research can be further developed, validated, and utilized for the educational betterment of all our nation's youth.
>
> T. R. Jones, Chief Consultant
> Department of Occupational
> Education and Technology
> Texas Education Agency
> Austin, TX

Although I was unable to participate in the evaluation of all state schools participating in this project, I enjoyed membership on the visitation team and found the experience both professionally and educationally rewarding.

The selection of a design which utilizes people who are knowledgeable about vocational education and experienced in interview techniques to collect the data for the study is a strength. Other strong points include:

Administration of the data collection instruments is a relatively uncomplicated process.

The categories usually considered important in vocational education programs (philosophy of vocational education, written objectives, advisory councils, etc.) were addressed.

Except for the wording of some questions in the data collection instruments, no major weaknesses were obvious. The final reports written for the two institutions I visited appear to be congruent with my impressions of the evaluation sessions.

Paul Myers, Research Management
Assistant
Division of Occupational Research
and Development
Texas Education Agency
Austin, TX

Although the model for evaluating the institutional vocational education programs for the handicapped appeared to be related more to secondary and post secondary public school vocational education programs than the programs for special populations in a residential setting, the findings, in my opinion, accurately reflected the quality of these programs according to the stated goals and objectives.

I administered various questionnaires at two state schools and one state hospital. The instruments were well designed and easy to administer. The summary reports revealed a wealth of information that was relevant for program planning, development, and improvement.

A somewhat different type of questionnaire should be designed for interviewing the mentally retarded vocational education student. Most of the students I interviewed were not able to comprehend or accurately verbalize their feelings concerning the value or benefit of the training they were receiving.

In conclusion, I feel that the model is an appropriate instrument for evaluating vocational education programs.

Louis Corenblith, Consultant
Rehabilitation Services
Texas Department of Mental Health
and Mental Retardation
Austin, TX

According to my perceptions of the three programs that I participated in evaluating, the evaluation model produced meaningful scores and especially constructive criteria. The evaluation model was valuable in specifying both negative and positive aspects of the vocational education programs visited. In addition, negative aspects of the programs were evaluated in a constructive manner which should lead to improvement in deficits.

However, another study should be conducted in an attempt to evaluate the goals and objectives in terms of their meaningfulness to state schools'/state hospitals' personnel and students. This may lead to some significant changes in wording, answers, and content of the questions. Weights would possibly change also.

Stanley Fudell, Ed.D., Consultant
Programs for the Retarded
Texas Department of Mental Health
and Mental Retardation
Austin, TX

The vocational program evaluation model utilized in evaluating the vocational education programs for the handicapped in the state schools and hospitals in Texas is a well developed document. It is a comprehensive evaluation model that, in my opinion, would better serve as a model to follow in evaluating vocational education programs in the public schools. The type of clientele served by the state schools and hospitals differ greatly from students in public school programs. The nature of administration of public schools compared to that of institutions also varies significantly. These factors and other variables make it difficult to evaluate the success or failure of any program in these select settings and for these special populations.

(Mrs.) Eleanor K. Mikulin, Chief
Consultant
Special Education Programs
Administration
Division of Special Education and
Special Schools
Texas Education Agency
Austin, TX

Your "rough drafts" follow the instrument format and give the desired information we were seeking. The interpretations of the various items, based on the raw data, gave a good evaluation of each of the facilities. I endorse these four documents.

Paul E. Williams, Consultant
Special Education Program
Administration
Division of Special Education and
Special Schools
Texas Education Agency
Austin, TX

Summary

Importance and effort ratings assigned the goal statements by the directors of education at the seven state schools/state hospitals included in this study resulted in goal weight factors that ranged from 5 to 8. Out of a possible range of 1 to 9 only one goal received a weight as small as 5, and 20 of the 24 goals received weight factors of either 7 or 8. Because these weight factors were calculated from the importance and effort ratings assigned each goal statement, they represented the significance of the programmatic concept expressed in the goal statement relative to the pilot programs as conceived by the directors of education. Therefore, relatively large weight factors indicated that the directors of education viewed the expressed concepts as significant features of the pilot programs in vocational education for the handicapped.

The degree of success in accomplishing established objectives of vocational education experienced by the state schools/state hospitals as a group was reported in the form of average objective achievement scores. These scores, which were a summary of the average achievement scores for the goals associated with each objective, consisted of 75 percent for Objective 1, 83 percent for Objective 2, 93 percent for Objective 3, and 79 percent for Objective 4.

Objective 1 addressed the concept of providing vocational education to those individuals who could benefit from the instruction by becoming better qualified to enter the world of work and was interpreted by four goal statements. These four goal statements, which dealt with institutional statements of philosophy relative to vocational education, accountable financial management systems, future plans for vocational education, and the appointment and utilization of advisory committees received average achievement scores of 71, 92, 75, and 54 percent respectively. The average achievement scores of 71 percent for Goal 1:01, 92 percent for Goal 1:02, and 75 percent for Goal 1:04 indicated that the institutions included in this study were seriously attempting to provide for vocational education by creating an institutional atmosphere conducive to the continual growth, development, and further refinement of the pilot programs in vocational education for the handicapped. However, the range of achievement scores for Goal 1:04 (0 - 97 percent), in conjunction with the Goal 1:04 average achievement score of 54 percent, indicated that advisory committees generally were not involved in the planning and implementation of the pilot programs.

The substantial average achievement scores for a majority of the goals associated with Objective 2 indicated that the students enrolled in the pilot programs at the various institutions were being provided comprehensive vocational education which related education for earning a living to education for living. Only Goal 2:04, which had an average achievement score of 56 percent, was not particularly well fulfilled; and, as revealed by the range of achievement scores for this goal (0 - 100 percent) consumer education, an aspect of education for living, was not included as an integral part of the total vocational education program at some institutions.

Average achievement scores of 88 percent for Goal 2:05 and 93 percent for Goal 2:06 revealed that instruction relative to employer-employee relations was being provided and that a sincere effort was being made to assist the students in developing positive work attitudes. The average achievement score of 94 percent for Goal 2:01 also indicated that the general education, professional, and vocational education personnel at most institutions had cooperated to organize their offerings and services in relation to the vocational education programs. However, in several instances the program instructors did express some doubt as to whether a number of students who were placed in the pilot programs could actually succeed in the occupations for which instruction was being offered.

Making vocational education increasingly accessible to those individuals desiring such instruction was the primary concept expressed in Objective 3. In this evaluation model that concept was interpreted as the identification of the students' social and educational needs and the provision of the support, encouragement, and instruction required to fulfill those needs. Through the use of interdisciplinary evaluation teams and with the aid of the "Behavioral Characteristics Progression" charts, the task of identifying student needs was being accomplished in the state schools and state hospitals included in this study; and, as was evidenced by the significant average achievement scores for the goals pertaining to Objective 3, definite efforts were being made to fulfill those identified student needs. In fact, three of the five goals pertaining to Objective 3 had average completion scores of 96 to 98 percent and the other two goals had scores of 85 percent. However, the possibility that some institutions were not offering a sufficient number and variety of vocational programs to satisfy the varied aspirations of the student clientele and the limited use of vocational information services in several institutions widened the range of average achievement scores for Goals 3:03 and 3:05.

Objective 4 addressed the concept of providing quality vocational education programs capable of preparing individuals to enter the world of work in recognized occupations. Consequently, the goal statements associated with Objective 4 essentially pertained to the operational procedures and instructional methods employed in the conduct of the pilot programs in vocational education for the handicapped. Although the average achievement scores for Objective 4 were relatively consistent from goal to goal, the range of scores within each goal was quite extensive. Thus, the degree of success experienced in fulfilling the goals varied from institution to institution.

At a large majority of the institutions included in this study, the curriculum materials utilized in the instructional processes as well as the skill development experiences received by the students reflected the skill and knowledge requirements of the occupations for which instruction was being offered. Student learning activities were also organized in such a manner that individualized instruction, when appropriate, was available to all students. However, evidence of individual student progress toward acquiring job skills was generally not recorded and activities such as field trips and on-site visits were not utilized as a method of instruction. It was also noted that the self-evaluations of the pilot programs were generally conducted on an informal basis.

Facilities housing the pilot programs were usually quite adequate and the machines and equipment therein were commensurate with the instructional objectives of the various pilot programs and, in most instances, representative of what would be found in business or industrial situations. However, several former students' employers indicated that their new employees required substantial retraining before they could become occupationally competent.

As was evidenced by the average achievement scores for Goals 4:05 and 4:08, job placement and former student follow-up procedures were not fully developed in several state schools/state hospitals. The Texas Rehabilitation Commission was to have primary responsibility for job placement and former student follow-up (Phase III of the state plan for vocational education for the handicapped). However, at those institutions where job placement procedures had been established in addition to those offered by the Texas Rehabilitation Commission greater success appeared to be experienced in locating employment situations that were in or directly related to the students' area of preparation than was experienced at those institutions where the Texas Rehabilitation Commission had sole responsibility for job placement. This same phenomenon seemed to apply to former student follow-up, i.e., at those institutions where former student follow-up procedures had been established in addition to the services offered by the Texas Rehabilitation Commission more complete former student follow-up information seemed to exist than existed at those institutions where former student follow-up procedures were not definitely assigned.

Statements written by six individuals who had assisted in the data collection and had read the final reports issued the various institutions included in this study were utilized as evaluation findings relative to the design and operation of the vocational program evaluation model developed in this study. This group of individuals found the evaluation model and its related processes capable of producing a comprehensive, accurate account of what was actually transpiring in the pilot programs. The data collection instruments were found to be relatively easy to administer and the fact that individuals rather than self-administered data collection instruments were utilized to collect the evaluative data was listed as an advantage. However, it was noted by the above mentioned group that the evaluation model and its related processes appeared to be more applicable to the evaluation of secondary and post-secondary public school vocational education programs than to programs for special populations in residential settings. It was also noted by one individual and insinuated by others that the interview questions contained in the "Vocational Student Questionnaire" were not appropriate for mentally handicapped individuals.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to develop an evaluation model which could be utilized to determine the effectiveness of pilot programs in vocational education for the handicapped in terms of meeting established objectives of vocational education. This purpose was to be accomplished by fulfilling two contributing objectives, namely:

1. To test the model and the related processes necessary for evaluating pilot programs in vocational education for the handicapped.
2. To obtain a relative measure of selected state schools'/state hospitals' success in accomplishing established objectives of vocational education.

Following an extensive review of the literature relative to educational evaluation, six postulates were formed concerning the expectations of a vocational program evaluation model. These postulates, as listed below, constituted the framework for the development of this particular evaluation model:

1. An evaluation model must be capable of providing factual decision-making information to a specific audience.
2. An evaluation model must provide a means for fully describing all aspects of an educational program.

3. An evaluation model must be capable of producing reliable decision-making information without relying on an experimental design.
4. Evaluation models utilized in education should be designed and developed for educational situations.
5. Data analysis procedures employed in a program evaluation model should allow for direct program comparisons.
6. Performance indices employed to determine program effectiveness should be composed of both process and product data.

Because The Center for Vocational and Technical Education at The Ohio State University (hereafter referred to as The Center) had developed a system for state evaluation of vocational education programs which also appeared to be based on a number of the previously stated postulates, The Center system was utilized as a point of departure for the evaluation model developed in this study. However, the evaluation procedures developed by The Center were designed to be implemented in an educational setting that differed substantially from the state schools and state hospitals in Texas. Thus, apart from a similar skeletal outline of basic evaluation strategies, the processes and procedures employed by this model were germane to the pilot programs in vocational education for the handicapped.

Similar to the evaluation model created by The Center, the model developed in this study has objectives, goals, and outcomes as its main components. The vocational education objectives utilized in this study were formulated by The Center and represent the work of evaluation specialists, psychologists, vocational program specialists, and state directors of vocational education with final validation by a national survey of state directors and head state supervisors of vocational education. Because these objectives represent the concepts of leaders in the field of vocational education and because they are also sufficiently global to apply to any program at any level, they were utilized in the evaluation model developed in this study. The objectives are stated as follows (Starr & Dieffenderfer, 1972):

> 1. To provide vocational education to youth and adults who will be entering the labor force and to those who seek to upgrade their occupational competencies or learn new skills.
> 2. To provide comprehensive vocational education which relates general and vocational education offerings to the vocational objectives of students.
> 3. To make vocational education increasingly accessible to those who desire it.
> 4. To provide quality vocational education which meets the vocational aspirations of people while being compatible with employment opportunities. (p. 14)

However, the universality of the vocational education objectives made them insufficiently precise to be measured directly. Therefore, it was necessary to interpret each objective in the form of numerous goal statements which were sufficiently precise to be measurable. In addition to interpreting the objectives, the goal statements were also designed to:

1. Produce a core of information which would yield an assessment of the extent to which the established objectives of vocational education were being achieved.
2. Reflect the vocational education intents of the state schools

and state hospitals as stated in their initial proposals to the funding agency.

3. Reflect the program decision requirements of the funding agency.
4. Provide a basis upon which to make a full description of the intents and activities of each pilot program in vocational education for the handicapped.

Just as there were numerous goals for each objective in this evaluation model, there also were numerous outcomes for each goal. The outcomes, which constituted the data base, were derived through a systematic procedure which consisted of the following four steps:

1. Listing each vocational education objective.
2. Listing under each objective the goal statements that would interpret the specific objective.
3. Listing under each goal statement the data elements (outcomes) required in order to determine if the goals were being achieved.
4. Listing under each data element the source of the required information.

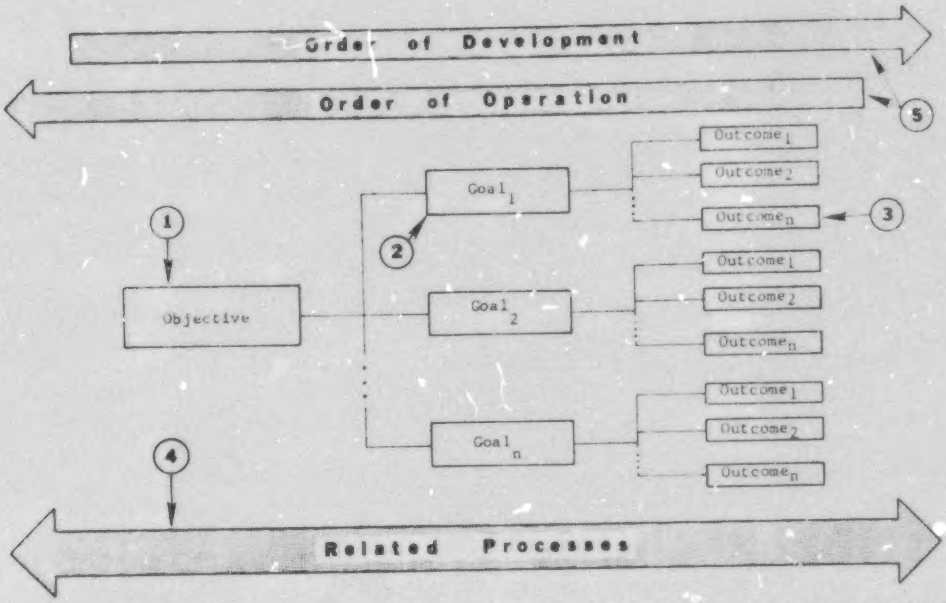
Thus, a direct relationship was established between the objectives, the goals, and the outcomes and a form of additivity was developed in that (a) the extent to which each goal statement was fulfilled was determined by the number of affirmative responses (outcomes) relative to each goal; and (b) the extent to which each vocational education objective was accomplished was determined by the degree to which the goals relative to the specific objective were fulfilled. Consequently, by first summing the number of affirmative outcomes related to each goal statement, and next, by summing the degree to which each goal statement was fulfilled, it became possible to obtain a relative measure of the success experienced at an institution in accomplishing a particular vocational education objective.

Two additional factors incorporated into this additive evaluation model were the weight factors assigned the goals and the qualified ratings given the outcomes. The goal weights were derived from ratings assigned each goal statement by those individuals who were responsible for the conduct of the programs included in the evaluation. On a 5-point Likert-type scale, these individuals rated the programmatic concept expressed in the goal statement in terms of its relative importance to their respective programs and the degree of effort they would have to expend to incorporate the expressed concept into the programs under their jurisdiction. Because all data elements derived through the systematic procedure previously described (Step 3) culminated in questions and prescribed observations and because these questions and observations were difficult to answer with an unequivocal "Yes" or "No," a provision was made to qualify each answer. This provision consisted of a rating scale which was based on the degree of evidence utilized by the respondent to support the "Yes" or "No" answer to the specific question or prescribed observation. A dynamic mix of process and product type evaluative criteria was also developed in Step 3 of the previously described procedure in that most process type data elements were given a product type counterpart, i.e., if a process type question was developed for one group, verification of the possible answer was sought by developing a prescribed observation or a product type question for another group.

At the completion of Step 4 in the previously described data base development procedure, six sources of information had been identified: namely, directors of education, vocational program instructors, vocational counselors, current students, former students' employers, and evaluation team members. Also, at this point in the development of the evaluation model and its related process, it was determined that the most efficient method of acquiring the required information from the identified institutional personnel, students, and former students' employers would be through the use of personal interviews. Likewise, it was determined that the visitation team members could contribute to the data base most efficiently by making prescribed observations.

Following the development of the data base and the identification of the information sources, appropriate data collection instruments were prepared. These instruments consisted of one questionnaire which was utilized to obtain the goal statement importance and effort ratings from the various directors of education and five different interview questionnaires which were utilized to obtain the desired evaluative information from the previously identified information sources--exclusive of the visitation team members. Prescribed observations, which were made by the visitation team members, were included in the appropriate personal interview questionnaire. The content validity of the data collection instruments was subsequently established by a jury of experts. In conjunction with the development of the data collection instruments, data analysis procedures were also developed. The two primary components of the data analysis procedures consisted of computer programs. One program was written and utilized to calculate the weight factors from the goal statement importance and effort ratings while the second program was written and utilized to calculate the institutional objective achievement scores on a program by program basis. A pictorial summary of the evaluation model and its related processes is depicted in Figure 2.

Subsequent to the development of the evaluation model and its related processes, test sites were chosen and visitation team members were selected. Texas Education Agency, Division of Occupational Research and Development, personnel were responsible for choosing the test sites and selecting the visitation team members. Seven state schools/state hospitals were selected for participation in the field testing of the evaluation model and its related processes while an eighth institution was utilized for pilot testing the design and proposed operational procedures of the evaluation model. The visitation team selected consisted of four individuals who were representative of vocational education, the Texas Department of Mental Health and Mental Retardation, the Division of Occupational Research and Development; Texas Education Agency, and the Division of Special Education and Special Schools; Texas Education Agency.



① Four objectives are utilized which are universal in nature and express desired outcomes for vocational education in terms of national interests.

The degree of success experienced at an institution in accomplishing each objective is depicted by an objective achievement score.

Each objective achievement score is calculated by summing the degree of goal fulfillment for all goals relative to a particular objective.

② Numerous statements are utilized to interpret the vocational education objectives in terms of desirable programmatic concepts relative to the educational setting and particular programs to be included in the evaluation.

The proportionate amount each goal will contribute to the objective achievement score is determined by a weight factor.

Weight factors are derived from importance and effort ratings assigned each goal statement by the individuals who are administratively responsible for the conduct of the programs to be evaluated.

The degree to which each goal is fulfilled is dependent upon the sum of the ratings assigned the outcomes pertaining to the specific goal.

③ The data base consists of numerous process and product type data elements--process data to determine the existance of desirable program features and product data to assess the effectiveness of the features.

Each data element is in the form of a personal interview question or a prescribed observation--both require a "Yes" or "No" answer.

Each answer receives a rating based upon the evidence available to support the response.

④ Data is to be collected via on-campus visits by an evaluation team utilizing prepared data collection instruments.

Data analysis procedures have been developed which include computer programs to utilize in determining weight factors and objective achievement scores.

⑤ The model was developed by proceeding in a systematic manner from the objectives to the outcomes; a program is evaluated by proceeding from the outcomes to the objectives.

Figure 2. Pictorial and descriptive summary of the major components included in the evaluation model.

Evaluative data were collected via on-campus visits to the seven state schools/state hospitals between March 17, 1975, and April 18, 1975. The on-campus visitations, which took form four to six hours to complete at each institution, generally consisted of an introductory meeting with the superintendent of the institution, the data collection, a visitation team meeting, and a concluding meeting with the superintendent. Following the completion of the institutional visits, the data relative to each institution were analyzed and individual institutional reports, describing the local evaluation findings, were written. However, for this study, where a cumulative effect was desired, the data were analyzed and the findings reported for the institutions as a group. Figure 3 depicts the degree to which the four established objectives of vocational education were being accomplished in the seven state schools/state hospitals.

As depicted in Figure 3, Objective 1 of the established vocational education objectives was accorded an achievement rate of 75 percent. This objective achievement rate partially stemmed from the fact that both a published philosophy of vocational education and a set of future plans for vocational education existed at most institutions included in this study. However, the institutional degree of commitment to vocational education, as expressed in its philosophy, and the degree of detail included in the future plans varied from institution to institution. Special funds provided to the state schools/state hospitals for the conduct of the pilot programs in vocational education for the handicapped were controlled

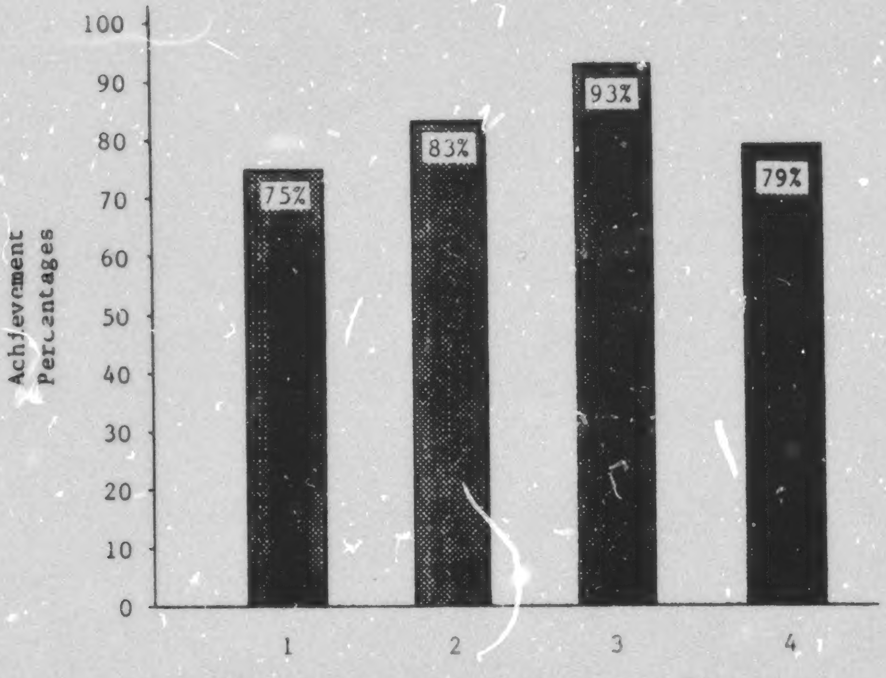


Figure 3. Degree of success experienced at the seven state schools/state hospitals in accomplishing established objectives of vocational education.

through accountable financial management systems which met the approval of most individuals involved. The primary shortcoming revealed relative to Objective 1 concerned the appointment and utilization of vocational education advisory committees. Advisory committees had not been appointed at a number of institutions, and in most institutions where advisory committees had been appointed, they were not effectively utilized.

The 83 percent rate of achievement for Objective 2 indicates that students enrolled in the various pilot programs were being provided comprehensive vocational education which related education for living to education for earning a living. Verification of this relationship was revealed through the analyses of the goals associated with Objective 2 which indicated that at most institutions the general education, professional, and vocational education personnel had cooperated to organize their offerings and services in relation to the vocational education programs. It was also revealed, and verified by former students' employers, that instruction relative to employer-employee relations was being provided and that a sincere effort was being made to assist students in developing positive work attitudes. However, consumer education, an aspect of education for living, was not included as an integral part of the total vocational education program at several institutions included in this study.

Objective 3 addressed the concept of making vocational education increasingly accessible to those individuals desiring such instruction and was interpreted in this evaluation model as meaning the identification, appraisal, and fulfillment of the social and educational needs of the student clientele. The 93 percent achievement rate for Objective 3 (Figure 3) is indicative of the success experienced at the various state schools/state hospitals in identifying and appraising the social and educational needs of the student clientele, and in providing specialized remedial instruction to students who possessed social and educational deficiencies which could have acted as serious barriers to successful program completion or job placement. At most institutions a form of career guidance was also incorporated into the pilot programs although it was found that occupational information relative to topics such as job characteristics, employment conditions, and worker qualifications was seldom collected and used as a means of assisting students in making informed career decisions.

The concept of providing quality vocational education programs capable of preparing individuals to enter the world of work in recognized occupations was addressed by Objective 4. Consequently, the degree to which this objective was accomplished was dependent upon the degree to which specified operational procedures and instructional methods were utilized in the conduct of the pilot programs. Although the 79 percent achievement rate for Objective 4 (Figure 3) indicates that the specified operational procedures and instructional methods were being utilized extensively in the conduct of the pilot programs, the degree of utilization varied considerably from institution to institution. However, at most institutions it was generally found that:

1. The curriculum materials utilized in the instructional processes as well as the skill development experiences received by the students reflected the skill and knowledge requirements of the occupations for which instruction was being offered.
2. Student learning activities were organized in such a manner that individualized instruction, when appropriate, was available to all students.

3. Facilities housing the pilot programs were quite adequate and the machines and equipment therein were commensurate with the instructional objectives of the various pilot programs and representative of what would be found in business and industry.
4. Procedures for program self-evaluation, job placement, and former student follow-up were not fully developed or formalized.

Following the conclusion of the pilot program evaluations and the issuance of the individual institutional reports, the visitation team members were asked to prepare a written statement describing their perceptions as to the general utility of the evaluation model and its related processes. These individuals, six in total exclusive of this researcher, observed that the data collection instruments were relatively simple to administer and that the results obtained from the program evaluations agreed with their perceptions of what was actually transpiring in the pilot programs. However, it was noted that the objectives, goals, and outcomes contained in the model were probably more applicable to vocational education programs in public secondary and post-secondary institutions than to the pilot programs in the state schools/state hospitals. It was also noted that most students experienced difficulty in responding to the interview questions contained in the "Vocational Student Questionnaire."

Conclusions

Importance and effort ratings assigned the 24 goal statements by the directors of education utilizing 5-point Likert-type rating scales (1 = little, 5 = great) resulted in (a) an importance rating mean of 4.00 or greater for 23 goals with a standard deviation of less than 1.00 for 21 goals, and (b) an effort rating mean of less than 4.00 for 21 goals with a standard deviation greater than 1.00 for 22 goals. Thus the following was concluded:

1. The directors of education at the institutions included in this study considered the programmatic concepts expressed in the goal statements as desirable functional components of the pilot programs in vocational education for the handicapped.
2. All directors of education viewed the programmatic concepts expressed in the goal statements as important.
3. Generally, obstacles such as cost, staff resistance, and lack of facilities and equipment could be or had been overcome in an effort to incorporate the programmatic concepts expressed in the goal statements into the pilot programs.
4. The degree of effort required to incorporate the programmatic concepts into the pilot programs varied from institution to institution.

Objective 1, which addressed the concept of providing vocational education to those individuals who could benefit from such instruction, was interpreted in this study to mean that in addition to offering skill development classes an institutional atmosphere should be created which is conducive to the continued growth, development, and further refinement of the vocational education programs. Thus, based on the various average achievement scores for the goals associated with Objective 1, it was concluded that:

1. Through the institutional statements of philosophy and formalized future plans for vocational education, most state schools/state hospitals included in this study were attempting to create an institutional atmosphere conducive to vocational education.
2. The institutional financial management methods utilized to disburse and acccunt for the special funds provided for the pilot programs were conducive to creating an institutional atmosphere favorable to vocational education.
3. The limited use of general and specific program advisory committees was not conducive to creating an institutional atmosphere favorable to vocational education.

Objective 2 and its concomitant goal statements addressed the relationship of vocational and general education. Hence, the average achievement scores for the goals associated with Objective 2 are indicators of the degree of success experienced at the various state schools/state hospitals in relating education for earning a living to education for living. Thus, utilizing the average achievement scores relative to the goals associated with Objective 2 as a basis, it was concluded that:

1. At most institutions included in this study, the general education, professional, and vocational education personnel had cooperated in organizing their services and offerings in relation to the pilot programs in vocational education for the handicapped.
2. The specific program instruction in most institutions was based on written performance objectives. However, the objectives were not generally derived from a formal analysis of required occupational competencies.
3. Instruction relative to employer-employee relations was being provided and efforts were being made to assist students in developing positive work attitudes.
4. Consumer education was not included as an integral part of the total vocational education program at most institutions.

Objective 3 addressed the concept of making vocational education increasingly accessible to those individuals desiring such instruction and was interpreted in this evaluation model as meaning the identification, appraisal, and fulfillment of the social and educational needs of the student clientele. As was indicated by the 93 percent average achievement rate for this objective, a substantial degree of success was experienced at the institutions included in this study in identifying, appraising, and fulfilling the social and educational needs of the student clientele. Consequently, it was concluded that:

1. The institutional interdisciplinary teams, with the aid of the "Behavioral Characteristics Progression" (BCP) charts,

were successful in identifying and appraising the social and educational needs of the student clientele.

2. Specialized remedial instruction was provided students who possessed social or educational deficiencies which could have acted as serious barriers to successful program completion or job placement.
3. At most institutions, a form of career guidance services was incorporated into the pilot programs and students who possessed reconcilable educational deficiencies were not prohibited from enrolling in the vocational programs.
4. Occupational information relative to topics such as job characteristics, employment conditions, and worker qualifications was generally not collected and used as a means of assisting students in making informed career decisions.

Objective 4 addressed the concept of providing quality vocational education programs capable of preparing individuals to enter the world of work in recognized occupations. Consequently, the goal statements associated with Objective 4 essentially pertained to operational procedures and instructional methods and the average achievement scores for the various goals represented the degree to which the specified operational procedures and instructional methods were utilized in the conduct of the pilot programs. Thus, based on the various average achievement scores for the goals associated with Objective 4, it was concluded that:

1. In most pilot programs, student learning experiences were directly related to the skill and knowledge requirements of the occupations for which instruction was being offered.
2. Facilities housing the pilot programs were adequate and the machines and equipment contained therein were commensurate with the instructional objectives of the various pilot programs and representative of what would be found in business and industry.
3. In most pilot programs, the teaching methods, procedures, and instructional materials utilized in the conduct of the teaching-learning process were commensurate with the educational ability levels of the student clientele.
4. Program self-evaluation, job placement, and former student follow-up procedures were not fully developed or formalized.

Based on written statements prepared by visitation team members and on the researcher's experiences, the following conclusions were drawn relative to the general utility of the evaluation model and its related processes:

1. The evaluation model is capable of providing factual decision-making information to a specific audience.
2. The evaluation model is capable of discriminating between those institutions which are highly successful in achieving established objectives of vocational education and those which are less successful.
3. The evaluation model data base provides sufficient process and product related data to determine program effectiveness

as well as describe various processes which have contributed to the final outcomes.

4. The data analysis procedures employed in the evaluation model provide for comparisons, if deemed desirable, on either a program by program or institution by institution basis.
5. The data collection methods prescribed in the evaluation model (visitation teams, personal interviews, prescribed observations) are both efficient and effective.
6. The programmatic concepts expressed by the goals included in this model are more applicable to vocational education programs in public secondary and post-secondary institutions than to the pilot programs in the state schools/state hospitals.
7. Mentally handicapped students, as found in the state schools/state hospitals, cannot adequately respond to the interview questions contained in the "Vocational Student Questionnaire."

Recommendations

Based on the conclusions drawn relative to the utility of the model, it is recommended that the evaluation model and its related processes be submitted to further field testing in public secondary or post-secondary institutions after:

1. Adding to, deleting from, or changing the goal statements to reflect desirable programmatic concepts of public secondary or post-secondary institutions.

2. Conducting a study in an attempt to validate the revised goal statements.
3. Submitting the data collection instruments to a stringent review in an attempt to remove any ambiguities in the phrasing of the interview questions.

If the evaluation model and its related processes are to be utilized in a setting which includes vocational education programs for the mentally handicapped, it is recommended that:

1. The goal statements be reviewed by a panel of consultants who are knowledgeable in the fields of vocational and special education and revised where necessary to reflect desired programmatic concepts of vocational education programs for the mentally handicapped.
2. The "Vocational Student Questionnaire" be revised to solicit action rather than verbal responses from the student clientele.

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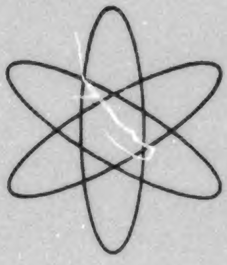
APPENDIX A

Instrument Utilized to Obtain Evaluation Statement Ratings

VOCATIONAL PROGRAM EVALUATIONS



EVALUATION STATEMENT RATINGS

Ratings of Evaluation Statements

Director of Education

Evaluation should be a process which contributes to further development and stabilization of an existing program. To accomplish this mission, those who administer the programs being evaluated must be afforded an opportunity to provide input into the evaluation procedure. Therefore, you, as Director of Education, are being asked to rate the following conceptual expressions in terms of their importance to and effort expended in the pilot vocational education programs.

To rate the importance of the statement, consider: "How important is it that the expressed concept become a functional part of the pilot programs in vocational education?"

To rate the effort implied in the statement, consider: "How much effort is required to overcome obstacles that may stand in the way of implementing the concept into the pilot vocational education programs?"*

**Consider obstacles such as:*

a) cost of implementation
b) staff resistance
c) facilities and equipment

Please indicate your rating of the following statements by placing a circle around the number that most closely reflects your thinking.

1:01 An institution offering vocational education should possess a statement of philosophy which reflects the institution's purpose and objectives relative to meeting the needs of the student clientele.	Little Importance 1 2 3 4 5 Great Importance Little Effort 1 2 3 4 5 Great Effort
1:02 The institution should possess a financial plan which is adequate to assure the quality and continuity of the vocational education programs.	Little Importance 1 2 3 4 5 Great Importance Little Effort 1 2 3 4 5 Great Effort

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1:03 The institution should possess formalized future plans for vocational education.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

1:04 The institution should utilize a general advisory committee in planning for vocational education and various occupational advisory committees to assist in developing current curriculums for each program.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

2:01 General education personnel, professional personnel, and vocational education personnel should work together to organize their offerings and services in relation to the vocational education program.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

2:02 Specific program instruction should be based on written performance objectives which were derived from an analysis of required occupational competencies.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

2:03 There should be a continual analysis and subsequent instructor updating of the occupational competencies that need to be taught for a specific occupation.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

2:04 Consumer education should be included as an integral part of the total vocational education program.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

2:05 Employer-employee relations should be taught as an integral part of the total vocational education program.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

2:06 Students enrolled in an effective vocational program should show evidence of change and growth in attitudes.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

3:01 Students with reconcilable educational deficiencies should be encouraged to enroll in the vocational program.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

3:02 Specialized remedial instruction should be made available to students who have educational deficiencies which act as serious barriers to successful program completion or job placement.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

3:03 The potential number of students the vocational programs can successfully accommodate should be enrolled.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

3:04 All vocational programs within the institution should be offered on a twelve-month basis.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

3:05 The institution should offer a structured career guidance program which enrolls all vocational students.

Little Importance Great Importance
1 2 3 4 5

Little Effort Great Effort
1 2 3 4 5

4:01 The instructional practices carried on in the classroom and laboratory should provide students with simulated work experiences reflective of what would be expected of them in a wage-earning situation.

Little Importance Great Importance
1 2 3 4 5

Little Effort Great Effort
1 2 3 4 5

4:02 Major equipment and machine acquisitions should be commensurate with the program objectives and when installed, the items should be complete with all safety devices and placed on a preventive maintenance and replacement schedule.

Little Importance Great Importance
1 2 3 4 5

Little Effort Great Effort
1 2 3 4 5

4:03 The vocational programs should be housed in adequate facilities that are well managed and free of health, fire, and safety hazards.

Little Importance Great Importance
1 2 3 4 5

Little Effort Great Effort
1 2 3 4 5

4:04 The institution should possess a formalized procedure for placing both graduates and non-graduates in an employment situation that is in or directly related to the area of their preparation.

Little Importance Great Importance
1 2 3 4 5

Little Effort Great Effort
1 2 3 4 5

4:05 Students in the vocational programs should be involved in cooperative or other out-of-class work experiences.

Little Importance Great Importance
1 2 3 4 5

Little Effort Great Effort
1 2 3 4 5

4:06 The vocational instructional staff members should be certified in the areas in which they teach and be evaluated in terms of their teaching proficiency.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

4:07 Vocational instructors should use effective teaching methods, procedures, and instructional materials in the conduct of the teaching-learning process.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

4:08 The institution should possess a formalized follow-up procedure which yields information relative to the adequacy, appropriateness, and effectiveness of the vocational education programs.

Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

4:09 An institution offering vocational education should conduct an annual self-evaluation for the purpose of identifying strong and weak points as a basis for up-grading the programs.

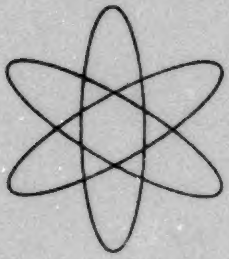
Little Importance — Great Importance
1 2 3 4 5

Little Effort — Great Effort
1 2 3 4 5

APPENDIX B

Instruments Utilized to Conduct the Personal Interviews and Make the Prescribed Observations

VOCATIONAL PROGRAM EVALUATIONS



DIRECTOR OF EDUCATION QUESTIONNAIRE

DIRECTOR OF EDUCATION QUESTIONNAIRE

Personal Interview Format

Institution: ________________________________

Instrument:

This instrument is designed to collect data from the Director of Education relative to the pilot programs in vocational education. Questions contained in this instrument are of the following two types:

1. Questions directed to the Director of Education.
2. Questions you, the interviewer, are to answer after making selected observations.

Different formats were used to assist you in differentiating between the two types of questions. The questions directed to the Director of Education begin with a verb and are placed at the left-hand margin. The questions to which you are to respond are written in statement form and are placed in a box as shown below.

To assist you in forming your thoughts relative to the interview, the questions are grouped into related areas with the title of the area printed in caps at the left-hand margin.

Instructions:

1. *Read the questionnaire to familiarize yourself with its content.*
2. *Follow the format presented in the questionnaire.*
3. *Ask each question exactly as presented.*
4. *Record the "Yes" or "No" response to the question by placing a check (✓) on the appropriate line.*
5. *Rate the evidence used to support the answers according to the following scale:*

   0 = No
   3 = Yes, but evidence to support the answer is lacking
   7 = Yes, but evidence used to support the answer is questionable
   10 = Yes, there is strong evidence to support the answer

6. *Record a "Yes" or "No" response to the observer statements and rate the supporting evidence according to the above scale.*
7. *If a particular question is not applicable to this institution, place the letters N/A on the appropriate "Rate" line.*

	Yes	No	Rate	Goal No.
PHILOSOPHY & OBJECTIVES				
Does this institution publish a clear statement of its philosophy and objectives for vocational education?	___	___	___	1:01
Does the statement of objectives describe:				
the clientele to be served?	___	___	___	1:01
the institution's responsibilities?	___	___	___	1:01
the means through which the objectives are to be realized?	___	___	___	1:01

Read the institution's statement of philosophy and objectives before answering the following questions.

	Yes	No	Rate	Goal No.
The statement of philosophy and objectives gives evidence of commitment to vocational education on the part of the governing body and the administration of the institution?	___	___	___	1:01
The institution's stated vocational education philosophy and objectives are appropriate and realistic in light of:				
employment needs of people the institution is expected to serve?	___	___	___	1:01
needs for up-graded or up-dated occupational skills?	___	___	___	1:01
trends in occupational requirements?	___	___	___	1:01
employment opportunities for the institution's students, graduates, and early leavers?	___	___	___	1:01
The objectives are based on an analysis of manpower needs and job opportunities available to the clientele the institution is expected to serve?	___	___	___	1:01
The objectives are based on an analysis of the vocational education needs of the clientele the institution is expected to serve?	___	___	___	1:01

	Yes	No	Rate	Goal No.
The objectives are stated in such a way that				
the general public can understand them?				1:01
they give direction to the institution's vocational education planning and activities?				1:01
they enable the general public to determine the extent to which the institution can be expected to serve community needs?				1:01
PLANNING				
Does the institution have a future plan for vocational education?				1:03
Do the future plans include anticipated budgets?				1:03
Are the vocational faculty members involved in developing the future plans?				1:03
Have priorities been established in view of educational needs and the financial structure?				1:03
ADVISORY COMMITTEES				
Has a general advisory committee been appointed to assist in planning for vocational education?				1:04
Does the membership of the general advisory committee represent a broad spectrum of groups concerned with vocational education, such as: employers, employees, organized labor, former students, social and economic planning agencies, and the state employment service?				1:04
Does the general advisory committee meet regularly to consider matters pertinent to effective operation of the vocational programs?				1:04
Are minutes of the general advisory committee meetings available for examination and reference by the institutional community?				1:04
Is there a record of the institution's responses to the recommendations of the general advisory committee?				1:04

	Yes	No	Rate	Goal No.
FINANCIAL MANAGEMENT				
Does a prepared budget exist for each vocational program?	___	___	___	1:02
Does the budget indicate all anticipated sources of funds?	___	___	___	1:02
Does the budget provide a complete overview of anticipated expenditures?	___	___	___	1:02
Are the instructional staff members included in the development of the budget?	___	___	___	1:02
Are funds budgeted to provide for travel of instructors and students in connection with instruction?	___	___	___	1:02
Does the accounting system allow you to compute the average annual per-student cost for instruction?	___	___	___	1:02
Does the financial management system of the institution provide for the accountability of all expenditures?	___	___	___	1:02
SELF-EVALUATION				
Does this institution conduct a continual self-evaluation of the vocational programs?	___	___	___	4:09
Is there a steering committee appointed to conduct the self-evaluation?	___	___	___	4:09
Are program instructors, administrators, and advisory committee members represented on this steering committee?	___	___	___	4:09
Does the steering committee hold periodic meetings?	___	___	___	4:09
Does the steering committee issue a final report which identifies major strengths, weaknesses, and plans for improvement?	___	___	___	4:09
STAFF EVALUATIONS				
Is a personnel evaluation plan utilized?	___	___	___	4:06
Was the vocational staff involved in establishing the personnel evaluation plan?	___	___	___	4:06

	Yes	No	Rate	Goal No.
Is there a systematic plan for assessing vocational staff effectiveness in terms of curricular needs?	___	___	___	4:06
Do all vocational instructors meet state certification requirements for the area in which they teach?	___	___	___	4:06
Are the vocational staff assignments and responsibilities clearly defined within the instructional program areas?	___	___	___	4:06
within the structure of the total institution?	___	___	___	4:06
Is in-service training an established and continuing facet of the vocational programs?	___	___	___	4:06

VOCATIONAL PROGRAMS

	Yes	No	Rate	Goal No.
Is the range of vocational programs offered by this institution sufficient to serve the full range of abilities represented in the student clientele?	___	___	___	3:03
Have the vocational curriculum offerings bee[illegible] organized through the joint effort of both the general education personnel and the vocational education personnel?	___	___	___	2:01
Are vocational instructional programs also offered during the summer months?	___	___	___	3:04
Do the summer school programs meet the standards of the regular term except where special provisions apply?	___	___	___	3:04
Does the school/hospital employ a planned program for identifying students with special learning deficiencies?	___	___	___	3:01
For those students who are identified as having special learning deficiencies, does the school/hospital employ a planned program for appraising the nature of the problem?	___	___	___	3:01
Are students with reconcilable educational deficiencies encouraged to enroll in the vocational programs?	___	___	___	3:01

	Yes	No	Rate	Goal No.
Do the professional staff members (counselors, psychologists, etc.) assist in placing students in vocational programs?	___	___	___	2:01
The conduct of the actual programs show evidence of planning?	___	___	___	1:03

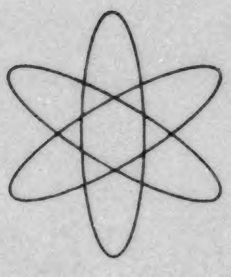
PLACEMENT & FOLLOW-UP

	Yes	No	Rate	Goal No.
Does the institution have an organized plan for assisting students in obtaining employment in the occupation for which they were prepared?	___	___	___	4:04
Are the placement functions definitely assigned and adequately supported with sufficient staff and other resources to operate effectively?	___	___	___	4:04
Are the students made aware of the placement services?	___	___	___	4:04
Are the placement services made available to all students in all the vocational programs?	___	___	___	4:04
Is the instructional staff involved in the placement activities?	___	___	___	4:04
Does the institution have an organized plan for conducting a former student follow-up study?	___	___	___	4:08
Are the follow-up functions definitely assigned and adequately supported with sufficient staff and other resources so as to be operated effectively?	___	___	___	4:08
Is information available on a program-by-program basis as to:				
the rate of student failure or withdrawal from the institution?	___	___	___	4:08
the reasons for student failure or withdrawal?	___	___	___	4:08
Do the follow-up efforts include surveys of former students' employers?	___	___	___	4:08
Is feedback from employers and other data from follow-up studies used for purposes of institutional planning, improving instruction, and modifying programs and services?	___	___	___	4:08

	Yes	No	Rate	Goal No.
Would you say that satisfactory school-employer relations are evidenced by the expressed satisfaction of both the former students and the former students' employers?	___	___	___	4:08
Are the follow-up activities evaluated in an effort to improve the data collection methods and increase the use made of the follow-up studies?	___	___	___	4:08

COMMENTS

VOCATIONAL PROGRAM EVALUATIONS



COUNSELOR QUESTIONNAIRE

CAREER GUIDANCE COUNSELOR QUESTIONNAIRE

Personal Interview Format

Institution: ______________________________

Instrument:

This instrument is designed to collect data from the career guidance counselor relative to the pilot programs in vocational education. Questions contained in this instrument are of the following two types:

1. Questions directed to the career guidance counselor.
2. Questions you, the interviewer, are to answer after making selected observations.

Different formats were used to assist you in differentiating between the two types of questions. The questions directed to the career guidance counselor begin with a verb and are placed at the left-hand margin. The questions to which you are to respond are written in statement form and are placed in a box as shown below.

To assist you in forming your thoughts relative to the interview, the questions are grouped into related areas with the title of the area printed in caps at the left-hand margin.

Instructions:

1. *Read the questionnaire to familiarize yourself with its contents.*
2. *Follow the format presented in the questionnaire.*
3. *Ask each question exactly as presented.*
4. *Record the "Yes" or "No" response to the question by placing a check (✓) on the appropriate line.*
5. *Rate the evidence used to support the answers according to the following scale:*

    0 = No

    3 = Yes, but evidence to support the answer is lacking

    7 = Yes, but evidence used to support the answer is questionable

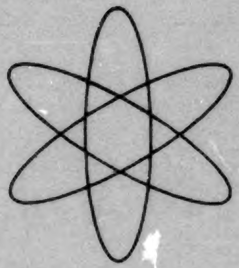
    10 = Yes, there is strong evidence to support the answer

6. *Record a "Yes" or "No" response to the observer statements and rate the supporting evidence according to the above scale.*
7. *If a particular question is not applicable to this institution, place the letters N/A on the appropriate "Rate" line.*

	Yes	No	Rate	Goal No.
Does this institution utilize a structured program (career guidance program) for assisting students in making career choices?	___	___	___	3:05
Does the career guidance program include:				
vocational information services?	___	___	___	3:05
personal data collection?	___	___	___	3:05
counseling services?	___	___	___	3:05
placement services?	___	___	___	3:05
former student follow-up?	___	___	___	3:05
Do you regularly collect, evaluate, and use occupational information?	___	___	___	3:05
Do you maintain a cumulative record of each vocational education student?	___	___	___	3:05
Does the student's cumulative record contain current data of the following types:				
personal identification data?	___	___	___	3:05
family information?	___	___	___	3:05
academic record?	___	___	___	3:05
standardized test results?	___	___	___	3:05
personal-social characteristics?	___	___	___	3:05
accomplishments?	___	___	___	3:05
educational and vocational plans?	___	___	___	3:05
entry, withdrawal, and follow-up?	___	___	___	3:05
Is the assembled information interpreted to:				
the students on a planned basis?	___	___	___	3:05
the student's parents or guardian on a planned basis?	___	___	___	3:05
the student's instructional staff on a planned basis?	___	___	___	3:05
Is the counselor-student ratio appropriate for accomplishing the objectives of the career guidance program?	___	___	___	3:05
Do you have a planned program for identifying students with special learning deficiencies?	___	___	___	3:01

	Yes	No	Rate	Goal No.
If students are identified as having special learning deficiencies, do you have a planned program for appraising the nature of the problem?				3:01
Once the nature of a student's special learning deficiency is appraised, is there a planned program for providing individualized remedial instruction?				3:02
Do you maintain contact with these students who possess special learning deficiencies?				3:02
Does the instructional staff aid you by:				
contributing to the students' cumulative records?				3:05
referring students to you?				3:05
assisting students to gain additional vocational information?				3:05
When vocational students leave this institution and seek employment, are they referred to positions in which they have a reasonable probability of being successful?				4:04
Are students re-enrolled in other school programs when it is evident they are not making satisfactory progress in their present program?				3:05
Has the administration established definite policies and provided sufficient funds to carry on an effective career guidance program?				3:05
Has a formalized plan been developed for a continuous evaluation and up-dating of the career guidance program?				3:05
There is evidence that the career guidance services are cumulative and developmental? (The services offered the students are based on their needs and actually appear to be assisting them in their career development.)				3:05

VOCATIONAL PROGRAM EVALUATIONS



PROGRAM INSTRUCTOR QUESTIONNAIRE

PROGRAM INSTRUCTOR QUESTIONNAIRE

Personal Interview Format

Institution: ____________________ Program: ____________________

Instrument:

This instrument is designed to collect data from the instructor relative to the pilot programs in vocational education. Questions contained in this instrument are of the following two types:

1. Questions directed to the program instructor.
2. Questions you, the interviewer, are to answer after making selected observations.

Different formats were used to assist you in differentiating between the two types of questions. The questions directed to the program instructor begin with a verb and are placed at the left-hand margin. The questions to which you are to respond are written in statement form and are placed in a box as shown below.

To assist you in forming your thoughts relative to the interview, the questions are grouped into related areas with the title of the area printed in caps at the left-hand margin.

Instructions:

1. *Read the questionnaire to familiarize yourself with its contents.*
2. *Follow the format presented in the questionnaire.*
3. *Ask each question exactly as presented.*
4. *Record the "Yes" or "No" response to the question by placing a check (✓) on the appropriate line.*
5. *Rate the evidence used to support the answers according to the following scale:*

    0 = No

    3 = Yes, but evidence to support the answer is lacking

    7 = Yes, but evidence used to support the answer is questionable

    10 = Yes, there is strong evidence to support the answer

6. *Record a "Yes" or "No" response to the observer statements and rate the supporting evidence according to the above scale.*
7. *If a particular question is not applicable to this program, place the letters N/A on the appropriate "Rate" line.*

STUDENT ENROLLMENT

	Yes	No	Rate	Goal No.
Is there an absence of unreasonable:				
course prerequisites that a student must meet before being allowed to enroll in this program?	___	___	___	3:03
grade level requirements for admission to this instructional program?	___	___	___	3:03
age requirements for admission to this instructional program?	___	___	___	3:03
achievement levels required of the student to remain in this instructional program?	___	___	___	3:03
Are all residents who meet the stated requirements enrolled in this program?	___	___	___	3:03
If a resident is unable to meet particular admission requirements, is he/she given help in remedying the deficiency?	___	___	___	3:03
Has the professional staff (counselor, psychologist, etc.) provided assistance with placing students in this program?	___	___	___	2:01
Are students who can benefit from the instruction placed in this program?	___	___	___	2:01
Are the students enrolled in this program capable of succeeding?	___	___	___	2:01
Can students enroll in this program without encountering conflicts with other required courses?	___	___	___	3:03
The potential number of students this program can successfully accommodate are enrolled?	___	___	___	3:03
Have the students enrolled in this program set occupational goals?	___	___	___	3:05
Are the students' goals commensurate with this vocational program?	___	___	___	3:05
Do the students show a desire to make the best use of their time while in the classroom and laboratory?	___	___	___	2:06

	Yes	No	Rate	Goal No.
LEARNING DISABILITIES				
Do you have students in this program who have special learning deficiencies?	___	___	___	3:01
If you identify various students as having severe learning problems which may hinder their success in this program, is there someone to whom they can be referred for remedial instruction?	___	___	___	3:02
If you identify various students as having severe social problems which may act as barriers to their chances of successful employment, is there someone to whom they can be referred for assistance?	___	___	___	3:02
Do you counsel individually with students, as needed, to aid them in:				
making career decisions?	___	___	___	3:02
removing barriers to learning?	___	___	___	3:02
removing barriers to successful employment?	___	___	___	3:02
Is student attitudinal change an important objective of this program?	___	___	___	2:06
Is there evidence available to suggest that the students have formed a more positive attitude toward school after enrolling in this program?	___	___	___	2:06
Are the students in this program encouraged to:				
answer questions or react to discussions?	___	___	___	2:06
ask questions voluntarily?	___	___	___	2:06
converse with adults?	___	___	___	2:06
confide in adults?	___	___	___	2:06
INSTRUCTIONAL PROGRAM--OBJECTIVES				
Do you have written performance objectives for this program which depict the competencies required of an individual employed in the occupation?	___	___	___	2:02
Did the performance objectives arise out of an analysis of the occupational competencies required of an individual employed in the occupation?	___	___	___	2:02

	Yes	No	Rate	Goal No.
Are the occupational competencies being taught based on an analysis of the skills required of individuals currently working in the occupation?	___	___	___	2:02
Are the students enrolled in this program made aware of the performance objectives?	___	___	___	2:02
Do your students understand the performance objectives?	___	___	___	2:02
Do you possess a plan for the systematic review and revision of the stated performance objectives?	___	___	___	2:02
Do you possess data to indicate student progress toward the accomplishment of the performance objectives?	___	___	___	2:02
Do the administrators fully understand the performance objectives of this instructional program?	___	___	___	2:02
It is apparent that the students are attempting to achieve the performance objectives?	___	___	___	2:02

INSTRUCTIONAL PROGRAM--METHODOLOGY

	Yes	No	Rate	Goal No.
Have you worked with the general education personnel (reading teachers, social counselors, psychologists, etc.) in organizing the curriculum content for this program?	___	___	___	2:01
Are written lesson plans prepared for each unit of instruction?	___	___	___	4:07
Are real or visual materials used with each unit of instruction?	___	___	___	4:07
Are such things as field trips and on-site visits used as a method of instruction?	___	___	___	4:07
Are resource people from the community utilized in the instruction process?	___	___	___	4:07
Is evidence from student progress records used in planning additional instruction and individualized study?	___	___	___	4:07
Is space and equipment provided for students to pursue independent study?	___	___	___	4:07

	Yes	No	Rate	Goal No.
Are the student learning activities organized in such a manner that individualized instruction, when appropriate, is available to all students?				4·07
Is the reading difficulty of written instructional materials keyed to the reading competence of the students?				4:07
Are supplementary instructional aids and teaching devices used to provide for special interests or learning problems?				4:07
Are progress charts utilized to record individual student progress?				4:01
Does the daily class schedule allow adequate time for instruction?				3:03
Are the class schedules arranged to accommodate activities such as field trips or off-campus instruction which may extend beyond the normal time allotment?				3:03
Instructional materials are accurate in content and reflect current occupational knowledge and practice?				4:07
There is evidence that a high degree of coordination exists between the classroom activities and the laboratory activities?				4:07
A sufficient quantity and variety of equipment and materials are available to facilitate a multi-media approach in the instructional process?				4:07
There is evidence of a satisfactory system of checking, servicing, and storing tools and materials?				4:07
Appropriate clothing is worn by the instructor and students when working in the laboratory area?				4:07
Is there a planned housekeeping program that encourages student participation?				4:03
Are provisions made for the storage of materials and the handling of heavy items?				4:03

	Yes	No	Rate	Goal No.
Have you practiced a fire drill with your students?	___	___	___	4:03
Is there an established procedure for obtaining materials, supplies, or repair parts without loss of time to students or yourself?	___	___	___	4:03
Is this instructional program offered on a regular on-going basis?	___	___	___	3:04
Is this program offered during the summer months?	___	___	___	3:04
Does this instructional program provide students with out-of-class laboratory experiences such as cooperative work-study?	___	___	___	4:05
Are the out-of-class experiences directly related to the training provided by the instructional program?	___	___	___	4:05
Are records kept of the student's performance on the out-of-class experiences?	___	___	___	4:05
Do you include consumer education as an integral part of this program?	___	___	___	2:04
Are any of the following units taught:				
shopping techniques?	___	___	___	2:04
money management (personal budgeting)?	___	___	___	2:04
use of checks and checking accounts?	___	___	___	2:04
use of credit?	___	___	___	2:04
insurance (Social Security, health, life)?	___	___	___	2:04
methods of savings?	___	___	___	2:04
The instructional program appears to be sufficiently flexible to provide for remedial instruction?	___	___	___	3:02
There is evidence to suggest that the instruction provided is commensurate with the students' ability and maturity levels?	___	___	___	3:02
There is evidence that this instructional program provides for individual differences of students and at the same time has sufficient breadth and depth to challenge all students?	___	___	___	3:02

	Yes	No	Rate	Goal No.
Required occupational skills that are current and up-to-date are being taught?	___	___	___	2:03
Required related skills that are current and up-to-date are being taught?	___	___	___	2:03

EVALUATION & THE INSTRUCTOR

	Yes	No	Rate	Goal No.
Is there a continual self-evaluation of this program?	___	___	___	4:09
Did you or someone else from this program have the opportunity to provide input into the self-evaluation?	___	___	___	4:09
Have you made an effort to strengthen identified weaknesses?	___	___	___	4:09
Has your assistance been sought in formulating current and long-range plans for vocational education?	___	___	___	1:03
Are your instructional assignments and responsibilities clearly defined:				
within this program?	___	___	___	4:06
within the structure of the total institution?	___	___	___	4:06
Do you currently hold a valid teaching certificate for this instructional area?	___	___	___	4:06
Has your teaching effectiveness been evaluated by those in charge of the administration of this program?	___	___	___	4:06
Were you involved in designing the personnel evaluation plan?	___	___	___	4:06
Do administrative policies which affect you arrive in written form?	___	___	___	4:06
Have you worked in the trade you are now teaching (summers or part-time) within the last two years?	___	___	___	2:03
Do you regularly participate in technical workshops, demonstrations, or short courses pertaining to new developments in your field?	___	___	___	2:03

	Yes	No	Rate	Goal No.
Do you hold memberships in professional organizations relative to your field of specialization?	___	___	___	2:03
Do you possess a good working relationship with the general education personnel?	___	___	___	2:01
Is the general education staff knowledgeable of what you are attempting to accomplish in this program?	___	___	___	2:01
Do you possess a good working relationship with the professional staff (counselor, psychologist, etc.)?	___	___	___	2:01
Is the professional staff (counselor, psychologist, etc.) knowledgeable of what you are attempting to accomplish in this program?	___	___	___	2:01
ADVISORY COMMITTEE				
Has an advisory committee been appointed for this program?	___	___	___	1:04
Does the membership of this advisory committee represent both employers and employees of the occupations for which this program is preparing individuals?	___	___	___	1:04
Does the advisory committee meet on a regular basis?	___	___	___	1:04
Are minutes of the committee meetings available for examination and reference by the institutional community?	___	___	___	1:04
Are the recommendations of the advisory committee implemented into this instructional program?	___	___	___	1:04
Do you go to the advisory committee to seek recommendations pertaining to curriculum development?	___	___	___	1:04
BUDGET				
Do you possess a budget for this program?	___	___	___	1:02
Does the budget provide sufficient funds to operate this program?	___	___	___	1:02
Have funds been budgeted to take care of daily operating costs such as supplies and materials?	___	___	___	1:02

	Yes	No	Rate	Goal No.
Is there an organized accounting system for handling funds that are received or disbursed in connection with this program?	___	___	___	1:02
Does the budget for this program include travel funds?	___	___	___	1:02
Can you spend funds budgeted for this program without going through an excessive amount of red tape?	___	___	___	1:02
MACHINES & EQUIPMENT				
Do you have at your disposal, sufficient machines and equipment to prepare an individual to enter the occupation for which he/she is training?	___	___	___	4:02
Is there a replacement schedule to cover all major equipment and machines used in this instructional program?	___	___	___	4:02
Is there a preventative maintenance schedule to cover all major equipment and machines used in this instructional program?	___	___	___	4:02
Does the final selection of major equipment items reflect an agreement between you, your supervisor, your advisory committee, and your administration?	___	___	___	4:02
Do the students demonstrate a concern for wasting consumable instructional supplies?	___	___	___	2:06
PLACEMENT & FOLLOW-UP				
Are job placement activities an integral part of this instructional program?	___	___	___	4:04
Are you involved with placing students in employment situations?	___	___	___	4:04
Are you involved with the follow-up activities being conducted at this institution?	___	___	___	4:08
Have you discussed with your students the importance of their contribution to future follow-up studies?	___	___	___	4:08

OBSERVATIONS

The remaining questions on this instrument are to be answered while observing the facilities and the students at work.

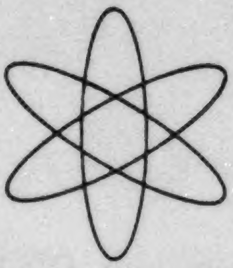
	Yes	No	Rate	Goal No.
The learning situation is such that all students may at all times be engaged in learning experiences directly related to their occupational objectives?				4:01
There is evidence that the instructional setting permits, and that students accept, realistic industry expectations of productivity at the level for which they are preparing?				4:01
Students appear to exhibit a genuine pride in their workmanship?				4:01
The instructional situation replicates best industry practices including cleanliness, orderliness, accuracy, speed, work methods, and efficiency?				4:01
Skills and knowledge being learned by the students are those currently acceptable in the occupation or subject being taught?				4:01
Students practice and exhibit understandings of safe work habits?				4:01
All elements of instruction (laboratory, related and occupational theory) are directly related to requirements of the occupation?				4:01
All students enrolled in this program are placed in satisfactory work stations?				3:03
There is evidence that the following items pertaining to employer-employee relations are being taught:				
pride in workmanship?				2:05
willingness to work?				2:05
self-discipline?				2:05
responsibility?				2:05
adjusting to working regulations?				2:05

	Yes	No	Rate	Goal No.
importance of personal progress?	___	___	___	2:05
getting along with fellow employees?	___	___	___	2:05
Major equipment items are in accordance with the instructional objectives of this program?	___	___	___	4:02
The major equipment items and machines are representative of what is actually used in industry?	___	___	___	4:02
The major equipment items appear to be:				
in good working order?	___	___	___	4:02
well maintained?	___	___	___	4:02
There is an absence of unkept and cluttered floors and work stations?	___	___	___	4:03
There are adequate provisions for protection from electrical hazards?	___	___	___	4:03
There are adequate provisions for fire protection?	___	___	___	4:03
The laboratory provides adequate work stations for all students enrolled in the program?	___	___	___	4:03
It is evident that students are aware of and are participating in the organization and management of the laboratory and classroom?	___	___	___	4:03
The laboratory and classroom are arranged for most effective use by the students and the instructor?	___	___	___	4:03
The classroom and laboratory are well heated, ventilated, cooled, and lighted?	___	___	___	4:03
Adequate visual control and supervision of all instructional areas is possible?	___	___	___	4:03
An approved system of color dynamics is applied to the interior of the laboratory and to the machines and equipment therein?	___	___	___	4:03
Provisions have been made for appropriate floor markings in laboratories and other facilities, identifying aisleways, work stations, potential hazards, and traffic patterns?	___	___	___	4:03

	Yes	No	Rate	Goal No.
An adequately located, furnished and equipped office area is provided for instructors for planning, for keeping records, and for consultation and administration?	___	___	___	4:03
Appropriate first aid supplies are available and readily accessible in the classroom or laboratory area?	___	___	___	4:03

COMMENTS

VOCATIONAL PROGRAM EVALUATIONS



VOCATIONAL STUDENT QUESTIONNAIRE

VOCATIONAL STUDENT QUESTIONNAIRE

Personal Interview Format

Institution:______________________ Program:________________________

Instrument:

This instrument is designed to collect data from the vocational student relative to the pilot programs in vocational education. All questions contained in this instrument are directed to the vocational student. To assist you in forming your thoughts relative to the interview, the questions were arranged in such order that each successive question is related to the previous one. Therefore, the order of the questions should lead to a normal conversation with the student.

Instructions:

1. *Read the questionnaire to familiarize yourself with its contents.*
2. *Follow the format presented in the questionnaire.*
3. *Ask each question exactly as presented.*
4. *Record the "Yes" or "No" response to the question by placing a check (✓) on the appropriate line.*
5. *Rate the evidence used to support the answers according to the following scale:*

0 = No

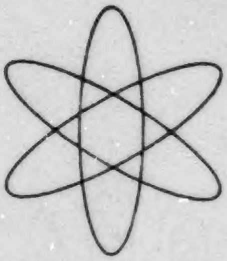
3 = Yes, but evidence to support the answer is lacking

7 = Yes, but evidence used to support the answer is questionable

10 = Yes, there is strong evidence to support the answer

	Yes	No	Rate	Goal No.
Do you like the kind of training you are receiving in this class?	___	___	___	3:05
Did you first learn about this program from someone here at the school/hospital?	___	___	___	3:05
Have you been told or shown what you are suppose to learn in this class?	___	___	___	2:02
Do you want a job like the one in this program?	___	___	___	3:05
Can you name some jobs that you think you will be able to do after you complete this program?	___	___	___	3:05
Do you plan to get a job as a ___________ when you leave the school/hospital?	___	___	___	3:05
Do you feel that the training you are receiving will help you get a job?	___	___	___	2:03
Do you feel that you are learning how to be a _____________ ?	___	___	___	2:03
When you finish the program, will the school/hospital help you find a job?	___	___	___	4:04
Do you like school more now after enrolling in this class?	___	___	___	2:06
While in class, are you always busy either working or learning?	___	___	___	2:06
Do you know how to operate all the tools and equipment used in this program?	___	___	___	4:02
Do you like the way the other students in this class treat you?	___	___	___	2:05
When you have problems with your work in this class, do other students help you?	___	___	___	2:05
Have you been told about things you will have to do when you get on a job, such as:				
get to work on time?	___	___	___	2:05
do good work all the time?	___	___	___	2:05
practice safe work habits?	___	___	___	2:05
do what your supervisor tells you to do?	___	___	___	2:05
be proud of your work?	___	___	___	2:05
get along with other workers?	___	___	___	2:05

VOCATIONAL PROGRAM EVALUATIONS



EMPLOYER QUESTIONNAIRE

EMPLOYER QUESTIONNAIRE

Telephone Interview Format

Employer__________________________ Student's Name____________________

Address__________________________ Student's Institution______________

Telephone________________________ Student's Program_________________

Instructions:

1. *Read the questionnaire to familiarize yourself with its contents.*
2. *Follow the format presented in the questionnaire.*
3. *Ask each question exactly as presented.*
4. *Record the "Yes" or "No" response to the question by placing a check (✓) on the appropriate line.*
5. *Rate the evidence used to support the answers according to the following scale:*

0 = No

3 = Yes, but evidence to support the answer is lacking

7 = Yes, but evidence used to support the answer is questionable

10 = Yes, there is strong evidence to support the answer

	Yes	No	Rate	Goal No.
When __________ began working for you, did he/she possess sufficient skills to do the work expected of him/her?	___	___	___	2:03
Is the quality of __________ work satisfactory?	___	___	___	4:01
Does __________ produce productive work?	___	___	___	4:01
Is __________ able to operate the existing equipment?	___	___	___	4:02
Does __________ seem willing to learn?	___	___	___	2:05
Does __________ express an interest in his/her work?	___	___	___	2:05
Does __________ practice safe work habits?	___	___	___	4:01

	Yes	No	Rate	Goal No.
Is __________ able to work without an excessive amount of supervision, i.e., without more supervision than is required of other employees?	___	___	___	4:01
Does __________ get to work on time each day?	___	___	___	2:05
Does __________ have a low absentee rate?	___	___	___	2:05
If given the opportunity, would you hire another individual who went through the same type of training program?	___	___	___	4:01

APPENDIX C

Computer Program:

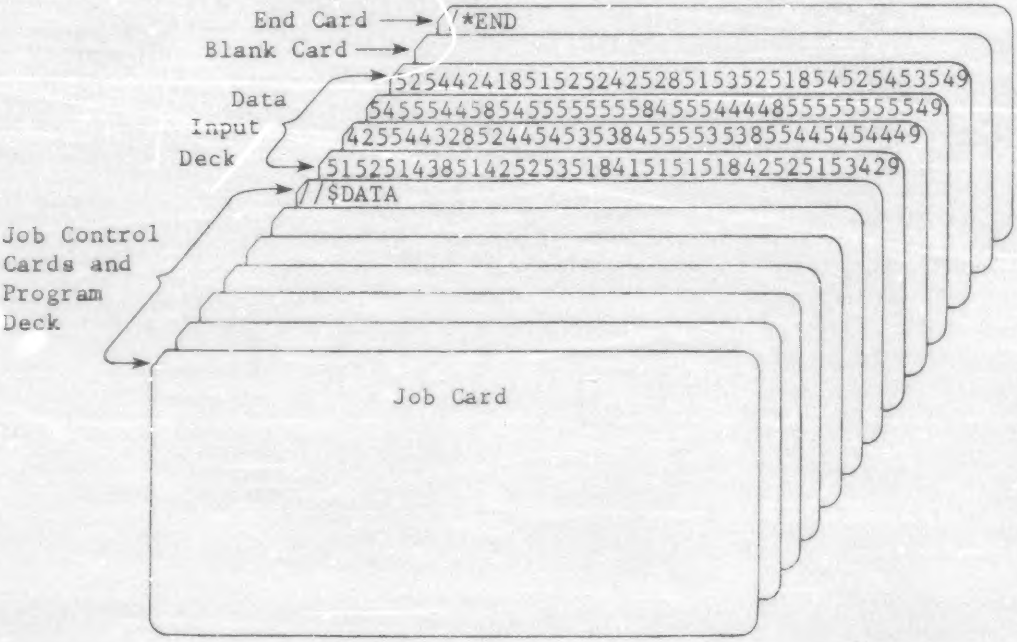
Goal Weight Calculations

Goal Weight Calculations

The computer program described on this page and displayed on the succeeding pages is utilized to calculate the weight factor for each goal statement. This program, written in FORTRAN IV for a WATFIV compiler, reads in as data input the importance and effort ratings assigned each goal statement as recorded on the data collection instrument entitled "Evaluation Statement Ratings." Printed output for this program includes not only the calculated goal weights but also the range, mean, and standard deviation for each rating scale as well as a title page and a listing of the data input cards.

Importance and effort ratings are punched into the data input cards, beginning in Column 1, exactly as they are found on the data collection instrument. Thus, Column 1 = Goal 1:01 importance rating, Column 2 = Goal 1:01 effort rating, Column 3 = Goal 1:02 importance rating, etc. All ratings for a particular instrument are placed on one data card. When all ratings pertaining to a particular objective have been punched (as noted by the first numeral in the goal statement number) an eight (8) is placed in the very next column to signify that the next group of ratings pertain to a different objective. Immediately following the ratings pertaining to Objective 4, a nine (9) must be punched to signify the end of the data on that card. The last data card in the input deck must be followed by a blank card. This program, which is designed to process a maximum of 100 cards in a single run, is not capable of handling missing data.

The complete card deck, consisting of the program deck and the data input deck, is organized as follows:


End Card
/*END
Blank Card
5254424185152524252851535251854525453549
Data
Input
Deck
5455544585455555555584555444485555555549
4255443285244545353845555353855445454449
5152514385142525351841515151842525153429
//$DATA
Job Control
Cards and
Program
Deck
Job Card

```
//RB795     JOB (F105-,106-J,*10,003,GR),'BEKKER, GERALD                  JOB 307
//*PASSWORD       ******************************************************
//*WATFIV
//*FORMS          1410005
C
C
C                       VARIABLE NAMES AND DESCRIPTIONS
C
C                       RATE(100,100) IS THE TITLE AND THE DIMENSION OF THE
C                       MATRIX COMPOSED OF THE RATINGS ASSIGNED TO THE VARIOUS
C                       GOAL STATEMENTS.  THE ROWS IN THE MATRIX CONSIST OF THE
C                       NUMBER OF CARDS, M, WHILE THE COLUMNS CONSIST OF THE
C                       NUMBER OF INDIVIDUAL RATINGS GIVEN EACH GOAL STATEMENT.
C
C                       AVG(2) IS THE MEAN OR AVERAGE FOR EACH COLUMN.  IT HAS A
C                       SUBSCRIPT OF EITHER "1" OR "2" BECAUSE THE AVERAGES OF
C                       TWO ADJACENT COLUMNS (IMPORTANCE & EFFORT) MUST BE
C                       SUMMED TO DETERMINE THE WEIGHT FACTOR.
C
C                       X1, X2, X3, X4, & X5 ARE COUNTERS WHICH ARE USED TO
C                       DETERMINE THE RANGE OF THE RATINGS.
C
C                       R IS THE OBJECTIVE INDEX AND RANGES FROM 1 TO 4.  IT IS
C                       INCREMENTED WHENEVER AN "8" IS ENCOUNTERED IN THE RATE
C                       MATRIX.
C
C                       RR IS THE GOAL INDEX WHICH COUNTS THE NUMBER OF GOALS
C                       PER OBJECTIVE.
C
C                       WT IS THE WEIGHT FACTOR THAT IS ASSIGNED AFTER THE
C                       AVERAGES OF TWO ADJACENT COLUMNS ARE SUMMED.
C
C                       Z IS THE COUNTER WHICH IS INCREMENTED EACH TIME A ROW OF
C                       ***** ARE PRINTED.  THE FIRST ROW ON EACH PAGE IS NOT
C                       COUNTED.  AFTER 5 ADDITIONAL LINES ARE PRINTED, A NEW
C                       PAGE OF OUTPUT IS STARTED.
C
C                       ZZ COUNTS THE NUMBER OF PAGES OF OUTPUT.
C
C                       K IS USED AS A SUBSCRIPT FOR THE VARIABLE AVG AND
C                       RANGES BETWEEN "1" AND "2".
C
C                       L IS AN INDEX WHICH COUNTS THE NUMBER OF NON-ZERO
C                       ELEMENTS IN ROW 1 OF THE RATE MATRIX.  THIS ALLOWS FOR
C                       ONLY NON-ZERO ELEMENTS OF THE INPUT DATA TO BE PRINTED.
C
C                       M COUNTS THE NUMBER OF DATA CARDS READ AND THUS BECOMES
C                       THE ROW COUNTER IN THE RATE MATRIX.
C
C                       SAVG IS THE SUM OF AVG(1), IMPORTANCE, AND AVG(2),
C                       EFFORT.  FOR ROUNDING PURPOSES, .05 IS ADDED TO SAVG.
C                       THIS GIVES A NUMBER ROUNDED TO THE NEAREST TENTH.
C
C
```

```
      DIMENSION AVG(2)
      INTEGER X1, X2, X3, X4, X5, R, RR, WEI, Z, ZZ, RATE(100,100)
      K = 0
      L = 0
      M = 0
      R = 1
      RR = 1
      S = 0.0
      SUM = 0.0
      SUM2 = 0.0
      WEI = 0
      Z = 0
      ZZ = 1
C
C                          ***************************************************
C                          *                                                 *
C                          *  READ IN THE RAW DATA.  MAXIMUM--100 CARDS AND 80 *
C                          *  COLUMNS.  LAST DATA CARD MUST CONTAIN ZEROS.   *
C                          *                                                 *
C                          ***************************************************
C
      DO 3 I=1, 100
         READ 101, (RATE(I,J), J=1, 80)
         IF (RATE(I,1).EQ.0) GO TO 9
         M = M + 1
    3 CONTINUE
    9 MM1 = M - 1
C
C                          ***************************************************
C                          *                                                 *
C                          *  DETERMINE THE NUMBER OF NON-ZERO ELEMENTS ACROSS *
C                          *  THE COLUMNS OF ROW 1 IN THE RATE MATRIX.       *
C                          *                                                 *
C                          ***************************************************
C
      II = 1
      DO 4 J=1, 80
    4 IF (RATE(II,J).GT.0) L = L + 1
C
C                          ***************************************************
C                          *                                                 *
C                          *  PRINT THE TITLE PAGE.                          *
C                          *                                                 *
C                          ***************************************************
C
      PRINT 902
      DO 20 I=1, 7
   20 PRINT 200
      PRINT 201
      PRINT 204
      PRINT 204
      PRINT 202
      DO 41 I=1, 5
   41 PRINT 204
      PRINT 203
      PRINT 204
      PRINT 204
      PRINT 205
```

```
C
C                         ************************************************************
C                         *                                                          *
C                         *  PRINT HEADINGS AND RAW DATA.                            *
C                         *                                                          *
C                         ************************************************************
C
      PRINT 500, ZZ
      ZZ = ZZ + 1
      PRINT 301
      DO 10 I=1, M
   10 PRINT 110, I, (RATE(I,J), J=1, L)
      PRINT 500, ZZ
      PRINT 505
      DO 2 J=1, 80
         X1 = 0
         X2 = 0
         X3 = 0
         X4 = 0
         X5 = 0
C
C                         ************************************************************
C                         *                                                          *
C                         *  DETERMINE THE RANGE OF RESPONSES TO THE RATING          *
C                         *  SCALE.  LOOPING ACTION WILL CONTINUE THROUGH DO         *
C                         *  STATEMENT 1 UNTIL ALL ELEMENTS IN A COLUMN ARE          *
C                         *  SUMMED.                                                 *
C                         *                                                          *
C                         *                                                          *
C                         *  IF AN "8" IS ENCOUNTERED, CONTROL PASSES TO STATE-      *
C                         *  MENT 21 AND THE OBJECTIVE COUNTER IS INCREMENTED.       *
C                         *                                                          *
C                         *                                                          *
C                         *  IF A "9" IS ENCOUNTERED, THE RUN IS COMPLETED AND       *
C                         *  AND THE PROGRAM TERMINATED.                             *
C                         *                                                          *
C                         ************************************************************
C
         DO 1 I=1, M
            IF (RATE(I,J).EQ.9) GO TO 900
            IF (RATE(I,J).EQ.8) GO TO 21
            IF (RATE(I,J).EQ.1) X1 = X1 + 1
            IF (RATE(I,J).EQ.2) X2 = X2 + 1
            IF (RATE(I,J).EQ.3) X3 = X3 + 1
            IF (RATE(I,J).EQ.4) X4 = X4 + 1
            IF (RATE(I,J).EQ.5) X5 = X5 + 1
C
C                         ************************************************************
C                         *                                                          *
C                         *  CHANGE EACH ELEMENT IN THE MATRIX TO A REAL NUMBER      *
C                         *  AND DETERMINE THE SUM OF EACH COLUMN.                   *
C                         *                                                          *
C                         ************************************************************
C
            SUM = SUM + FLOAT(RATE(I,J))
```

```
C
C                    *********************************************************
C                    *                                                       *
C                    *  SQUARE EACH ELEMENT IN THE COLUMN AND SUM THE        *
C                    *  SQUARES.                                             *
C                    *                                                       *
C                    *********************************************************
C
        XSUM = FLOAT(RATE(I,J))**2.
    1   SUM2 = SUM2 + XSUM
C
C                    *********************************************************
C                    *                                                       *
C                    *  DETERMINE THE STANDARD DEVIATION FOR EACH COLUMN.    *
C                    *                                                       *
C                    *  VARIABLES USED TO CALCULATE THE STANDARD DEVIATIONS *
C                    *  ARE:                                                 *
C                    *                                                       *
C                    *     SUM2 = SUM OF SQUARES                             *
C                    *     YSUM = SUM OF THE ELEMENTS SQUARED                *
C                    *      MM1 = M - 1                                      *
C                    *       S2 = VARIANCE                                   *
C                    *        M = NUMBER OF ELEMENTS, N                      *
C                    *        S = STANDARD DEVIATION                         *
C                    *                                                       *
C                    *  THE IF STATEMENT PROVIDES A MEANS FOR SKIPPING THE  *
C                    *  STATEMENT S = SQRT(S2) WHEN A COLUMN HAS ZERO        *
C                    *  VARIANCE.                                            *
C                    *                                                       *
C                    *********************************************************
C
      YSUM = SUM**2.
      S2 = (SUM2 - (YSUM/M))/MM1
      IF (S2.LE.0.0) GO TO 5
      S = SQRT(S2)
    5 K = K + 1
C
C                    ************-----****************************************
C                    *                                                       *
C                    *  DETERMINE THE MEAN FOR THE COLUMN.                   *
C                    *                                                       *
C                    *********************************************************
C
      AVG(K) = SUM/M
C
C                    *********************************************************
C                    *                                                       *
C                    *  DETERMINE IF THE IMPORTANCE COLUMN (K=1) OR THE      *
C                    *  EFFORT COLUMN (K=2) IS BEING TREATED.                *
C                    *                                                       *
C                    *********************************************************
C
      IF (K.EQ.2) GO TO 30
```

```
C
C
C                        *****************************************************
C                        *                                                   *
C                        *  IF K=1, PRINT GOAL NUMBER (504), RANGE (501), AND *
C                        *  NUMBER OF RESPONSES, MEAN, AND STANDARD DEVIATION *
C                        *  (505) FOR THE IMPORTANCE COLUMN.                 *
C                        *                                                   *
C                        *                                                   *
C                        *  IF K=2, CONTROL PASSES TO STATEMENT 30 WHERE THE *
C                        *  WEIGHT FACTOR IS DETERMINED AND PRINTED (501) AND *
C                        *  THE RANGE, RESPONSES, MEAN, AND STANDARD DEVIATION *
C                        *  (501) ARE PRINTED FOR THE EFFORT COLUMN.          *
C                        *                                                   *
C                        *****************************************************
C
      PRINT 504, K, RR
      PRINT 501
      PRINT 502, X1, X2, X3, X4, X5, AVG(K), S
      S = 0.0
      SUM = 0.0
      SUM2 = 0.0
      GO TO 2
   30 SAVG = (AVG(1) + AVG(2)) + .05
      IF ((SAVG.GE.0.0).AND.(SAVG.LT.2.5)) WEI = 1
      IF ((SAVG.GE.2.5).AND.(SAVG.LT.3.5)) WEI = 2
      IF ((SAVG.GE.3.5).AND.(SAVG.LT.4.5)) WEI = 3
      IF ((SAVG.GE.4.5).AND.(SAVG.LT.5.5)) WEI = 4
      IF ((SAVG.GE.5.5).AND.(SAVG.LT.6.5)) WEI = 5
      IF ((SAVG.GE.6.5).AND.(SAVG.LT.7.5)) WEI = 6
      IF ((SAVG.GE.7.5).AND.(SAVG.LT.8.5)) WEI = 7
      IF ((SAVG.GE.8.5).AND.(SAVG.LT.9.5)) WEI = 8
      IF ((SAVG.GE.9.5).AND.(SAVG.LT.10.5)) WEI = 9
      PRINT 501
      PRINT 503, X1, X2, X3, X4, X5, AVG(K), S, WEI
      PRINT 505
C
C                        *****************************************************
C                        *                                                   *
C                        *  INCREMENT COUNTERS AND RESET VARIABLES BEFORE    *
C                        *  RETURNING CONTROL TO THE DO-STATEMENT.           *
C                        *                                                   *
C                        *****************************************************
C
      Z = Z + 1
      K = 0
      WEI = 0
      S = 0.0
      SUM = 0.0
      SUM2 = 0.0
      RR = RR + 1
      IF (Z.EQ.5) GO TO 31
      GO TO 2
```

```
C
C                                    ****************************************************
C                                    *                                                  *
C                                    *  IF PAGE OF OUTPUT IS COMPLETED. CONTROL PASSES TO  *
C                                    *  STATEMENT 31 AND A NEW PAGE OF OUTPUT IS STARTED.  *
C                                    *                                                  *
C                                    ****************************************************
C
   31    ZZ = ZZ + 1
         PRINT 500, ZZ
         PRINT 505
         Z = 0
         GO TO 2
   21    R = R + 1
         RR = 1
    2 CONTINUE
  900 PRINT 902
C
C                                    ****************************************************
C                                    *                                                  *
C                                    *  FORMAT STATEMENTS:                              *
C                                    *     101 = DATA CARD FORMAT                       *
C                                    *     110 = PRINT--RAW DATA                        *
C                                    *     200 - 205 = TITLE PAGE                       *
C                                    *     500 = PAGE NUMBER                            *
C                                    *     501 = RANGES, 1 - 5                          *
C                                    *     502 = RESPONSES--IMPORTANCE                  *
C                                    *     503 = RESPONSES--EFFORT                      *
C                                    *     504 = GOAL NUMBERS                           *
C                                    *     505 = LINE OF ASTERISKS                      *
C                                    *                                                  *
C                                    ****************************************************
C
  101 FORMAT (80I1)
  110 FORMAT ('0', 'CARD', T6, I4, T13, 80I2)
  200 FORMAT ('-')
  201 FORMAT ('-', T48, '***************************************')
  202 FORMAT (' ', T48, '*    VOCATIONAL PROGRAM EVALUATIONS    *')
  203 FORMAT (' ', T48, '*         GOAL STATEMENT RATINGS       *')
  204 FORMAT (' ', T48, '*                                      *')
  205 FORMAT (' ', T48, '***************************************')
  500 FORMAT ('1', T125, 'PAGE:', I4)
  501 FORMAT ('0', T25, '1', T30, '2', T35, '3', T40, '4', T45, '5',
     *T90, 'STANDARD')
  502 FORMAT (' ', T10, 'IMPORTANCE:', 5I5, T60, 'MEAN:', T67, F5.2,
     *T80, 'DEVIATION:', T92, F5.2)
  503 FORMAT (' ', T10, 'EFFORT:', T21, 5I5, T60, 'MEAN:', T67, F5.2,
     *T80, 'DEVIATION:', T92, F5.2, T114, 'WEIGHT FACTOR:', T127, I3)
  504 FORMAT ('0', 'GOAL:', I2, T9, ':', T10, '00', T10, I2)
  505 FORMAT ('0', '***************************************************
     *****************************************************************
     ****************')
  901 FORMAT ('0', 'INPUT DATA:')
  902 FORMAT ('1')
      STOP
      END

//$DATA
```

VOCATIONAL PROGRAM EVALUATIONS

GOAL STATEMENT RATINGS

```
INPUT DATA:

CARD   1     5 1 5 2 5 1 4 3 8 5 1 4 2 5 2 5 3 5 1 8 4 1 5 1 5 1 5 1 8 4 2 5 2 5 1 5 3 4 2 9

CARD   2     4 2 5 5 4 4 3 2 4 5 2 4 4 5 4 5 1 5 3 8 4 5 5 5 5 3 5 3 8 5 5 4 4 5 4 5 4 4 4 9

CARD   3     5 4 5 5 5 4 4 5 8 5 4 5 5 5 5 5 5 5 5 8 4 5 5 5 4 4 4 4 8 5 5 5 5 5 5 5 5 5 4 9

CARD   4     5 2 5 4 4 2 4 1 4 5 1 5 2 5 2 4 2 5 2 8 5 1 5 3 5 2 5 1 8 5 4 5 2 5 4 5 3 5 4 9

CARD   5     4 3 5 5 4 4 2 2 3 4 4 4 1 5 5 3 5 5 5 8 5 2 5 4 5 5 4 4 8 4 5 5 3 5 4 5 5 5 1 0

CARD   6     5 1 5 3 5 2 4 4 8 5 4 4 5 5 3 5 2 5 5 8 5 1 5 3 5 4 4 5 8 4 3 5 2 5 3 5 5 5 2 9

CARD   7     4 1 5 4 5 1 4 3 8 4 1 5 4 4 4 5 1 5 2 8 4 3 4 1 5 1 4 4 8 4 3 5 1 5 4 5 5 5 4 9
```

```
                                                                                              PAGE:   2
*****************************************************************************************************
GOAL: 1:01

        IMPORTANCE:   1   2   3   4   5                    STANDARD
                      0   0   0   3   4          MEAN:  4.57   DEVIATION:   0.53

        EFFORT:       1   2   3   4   5                    STANDARD
                      3   2   1   1   0          MEAN:  2.00   DEVIATION:   1.15      WEIGHT FACTOR: 6
*****************************************************************************************************
GOAL: 1:02

        IMPORTANCE:   1   2   3   4   5                    STANDARD
                      0   0   0   0   7          MEAN:  5.00   DEVIATION:   0.00

        EFFORT:       1   2   3   4   5                    STANDARD
                      0   1   1   2   3          MEAN:  4.00   DEVIATION:   1.15      WEIGHT FACTOR: 8
*****************************************************************************************************
GOAL: 1:03

        IMPORTANCE:   1   2   3   4   5                    STANDARD
                      0   0   0   3   4          MEAN:  4.57   DEVIATION:   0.53

        EFFORT:       1   2   3   4   5                    STANDARD
                      2   2   0   3   0          MEAN:  2.57   DEVIATION:   1.40      WEIGHT FACTOR: 6
*****************************************************************************************************
GOAL: 1:04

        IMPORTANCE:   1   2   3   4   5                    STANDARD
                      0   1   1   5   0          MEAN:  3.57   DEVIATION:   0.79

        EFFORT:       1   2   3   4   5                    STANDARD
                      1   2   2   1   1          MEAN:  2.86   DEVIATION:   1.35      WEIGHT FACTOR: 5
*****************************************************************************************************
GOAL: 2:01

        IMPORTANCE:   1   2   3   4   5                    STANDARD
                      0   0   0   2   5          MEAN:  4.71   DEVIATION:   0.49

        EFFORT:       1   2   3   4   5                    STANDARD
                      3   1   0   3   0          MEAN:  2.43   DEVIATION:   1.51      WEIGHT FACTOR: 6
*****************************************************************************************************
```

```
                                                                                          PAGE:   7
*****************************************************************************************************
GOAL: 2:02

        IMPORTANCE:    1   2   3   4   5                                STANDARD
                       0   0   0   4   3          MEAN:   4.43          DEVIATION:   0.53

        EFFORT:        1   2   3   4   5                                STANDARD
                       0   2   1   2   2          MEAN:   3.57          DEVIATION:   1.27          WEIGHT FACTOR: 7
*****************************************************************************************************
GOAL: 2:03

        IMPORTANCE:    1   2   3   4   5                                STANDARD
                       0   0   0   1   6          MEAN:   4.86          DEVIATION:   0.38

        EFFORT:        1   2   3   4   5                                STANDARD
                       0   2   1   2   2          MEAN:   3.57          DEVIATION:   1.27          WEIGHT FACTOR: 7
*****************************************************************************************************
GOAL: 2:04

        IMPORTANCE:    1   2   3   4   5                                STANDARD
                       0   0   0   1   6          MEAN:   4.86          DEVIATION:   0.38

        EFFORT:        1   2   3   4   5                                STANDARD
                       1   2   2   0   2          MEAN:   3.00          DEVIATION:   1.53          WEIGHT FACTOR: 7
*****************************************************************************************************
GOAL: 2:05

        IMPORTANCE:    1   2   3   4   5                                STANDARD
                       0   0   0   0   7          MEAN:   5.00          DEVIATION:   0.00

        EFFORT:        1   2   3   4   5                                STANDARD
                       1   2   1   0   3          MEAN:   3.29          DEVIATION:   1.70          WEIGHT FACTOR: 7
*****************************************************************************************************
GOAL: 3:01

        IMPORTANCE:    1   2   3   4   5                                STANDARD
                       0   0   0   4   3          MEAN:   4.43          DEVIATION:   0.53

        EFFORT:        1   2   3   4   5                                STANDARD
                       3   1   1   0   2          MEAN:   2.57          DEVIATION:   1.81          WEIGHT FACTOR: 6
*****************************************************************************************************
```

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```
                                                                                                   PAGE:   4
**********************************************************************************************************

GOAL: 3:02

               1    2    3    4    5                            STANDARD
IMPORTANCE:    0    0    0    1    6          MEAN:   4.86      DEVIATION:   0.38

               1    2    3    4    5                            STANDARD
EFFORT:        2    0    2    1    2          MEAN:   3.14      DEVIATION:   1.69         WEIGHT FACTOR: 7

**********************************************************************************************************

GOAL: 3:03

               1    2    3    4    5                            STANDARD
IMPORTANCE:    0    0    0    1    6          MEAN:   4.86      DEVIATION:   0.38

               1    2    3    4    5                            STANDARD
EFFORT:        2    1    1    2    1          MEAN:   2.86      DEVIATION:   1.57         WEIGHT FACTOR: 7

**********************************************************************************************************

GOAL: 3:04

               1    2    3    4    5                            STANDARD
IMPORTANCE:    0    0    0    4    3          MEAN:   4.43      DEVIATION:   0.53

               1    2    3    4    5                            STANDARD
EFFORT:        2    0    1    3    1          MEAN:   3.14      DEVIATION:   1.57         WEIGHT FACTOR: 7

**********************************************************************************************************

GOAL: 4:01

               1    2    3    4    5                            STANDARD
IMPORTANCE:    0    0    0    4    3          MEAN:   4.43      DEVIATION:   0.53

               1    2    3    4    5                            STANDARD
EFFORT:        0    1    2    1    3          MEAN:   3.86      DEVIATION:   1.21         WEIGHT FACTOR: 7

**********************************************************************************************************

GOAL: 4:02

               1    2    3    4    5                            STANDARD
IMPORTANCE:    0    0    0    1    6          MEAN:   4.86      DEVIATION:   0.38

               1    2    3    4    5                            STANDARD
EFFORT:        1    3    1    1    1          MEAN:   2.71      DEVIATION:   1.38         WEIGHT FACTOR: 7

**********************************************************************************************************
```

```
                                                                                                      PAGE:  5
*************************************************************************************************************
GOAL: 4:03

                       1    2    3    4    5                          STANDARD
        IMPORTANCE:    0    0    0    0    7          MEAN:   5.00     DEVIATION:   0.00

                       1    2    3    4    5                          STANDARD
        EFFORT:        1    0    1    4    1          MEAN:   3.57     DEVIATION:   1.27             WEIGHT FACTOR: 9
*************************************************************************************************************
GOAL: 4:04

                       1    2    3    4    5                          STANDARD
        IMPORTANCE:    0    0    0    0    7          MEAN:   5.00     DEVIATION:   0.00

                       1    2    3    4    5                          STANDARD
        EFFORT:        0    0    2    1    4          MEAN:   4.29     DEVIATION:   0.95             WEIGHT FACTOR: 8
*************************************************************************************************************
GOAL: 4:05

                       1    2    3    4    5                          STANDARD
        IMPORTANCE:    0    0    0    2    5          MEAN:   4.71     DEVIATION:   0.49

                       1    2    3    4    5                          STANDARD
        EFFORT:        0    2    1    4    0          MEAN:   3.29     DEVIATION:   0.95             WEIGHT FACTOR: 7
*************************************************************************************************************
```

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APPENDIX D

Computer Program:

Objective Achievement by

Institution and Program

Objective Achievement by Institution and Program

The computer program described on this page and displayed on the succeeding pages is utilized to calculate an institution's objective achievement percentages relative to each vocational education program. This program, written in FORTRAN IV for a WATFIV compiler, reads in as data input the goal weights calculated in the previous program and the ratings used to qualify each interview question and prescribed observation. Printed output for this program includes a title page, the name of the institution, and the title of the vocational education program; and, for each objective, the goal numbers, the goal weights, the number of questions pertaining to each goal, the sum of the ratings assigned to each goal, and finally, as a percentage, the institution's objective achievement rate.

The data input deck for this program is composed of the following elements arranged in the order presented:

1. Weight Factors: Beginning in Column 1, the weight factors are punched into the data input card in the exact sequence as calculated in the previous program, i.e., Column 1 = weight factor for Goal 1:01, Column 2 = weight factor for Goal 1:02, etc. Weight factors pertaining to the goals associated with a particular objective are separated by a blank column.

2. Institution Name: The institution's name is punched into the data card beginning in Column 1.

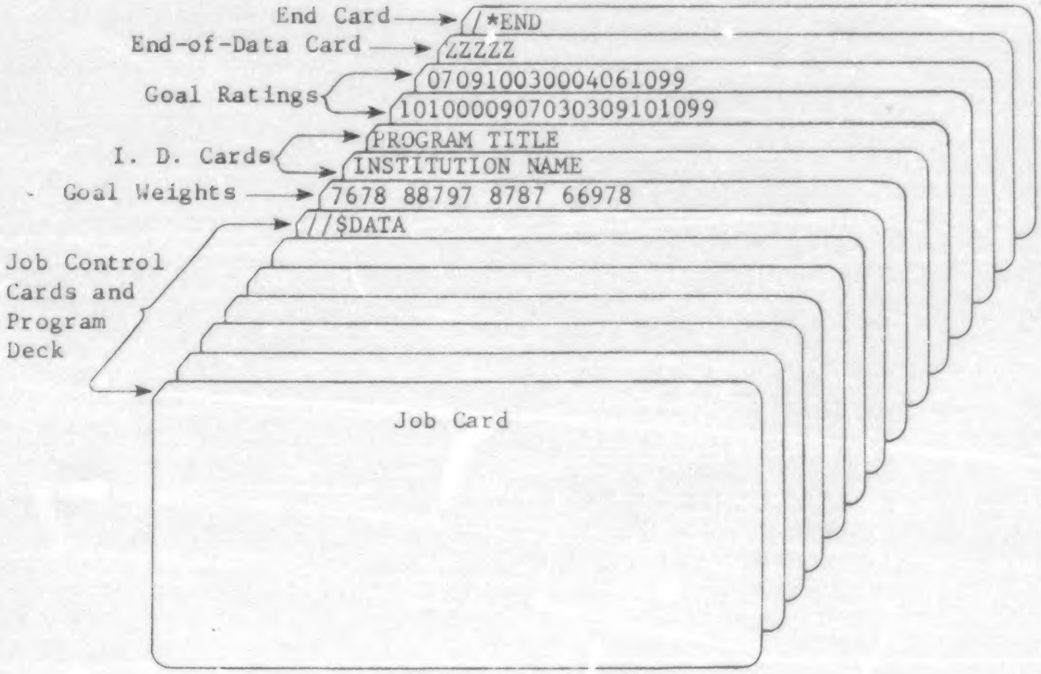
3. Program Title: The title of the vocational education program is punched into the data card beginning in Column 1.

4. Ratings: The data input cards containing the ratings assigned the interview questions and prescribed observations are arranged in the same sequence as the weight factors, i.e., ratings pertaining to Goal 1:01, followed by ratings pertaining to Goal 1:02, etc. Beginning in Column 1, these ratings are punched right-justified in 2-column fields with two nines (99) punched into the field immediately following the last data entry. Ratings assigned each goal must be placed on separate cards and all ratings assigned a particular goal must be placed on a single card; thus, the maximum number of ratings per goal is 39.

   Note: Data relative to any number of institutions and programs can be processed in a single computer run. The institution name card, the program title card, and the goal rating cards are repeated each time.

5. End-of-Data Card: A card containing Z's in at least the first five columns must be placed after the last goal rating card in the data input deck.

The complete card deck, consisting of the program deck and the data input deck, is organized as follows:


End Card
/*END
End-of-Data Card
ZZZZZ
Goal Ratings
070910030004061099
101000090703030910l099
I. D. Cards
PROGRAM TITLE
INSTITUTION NAME
Goal Weights
7678 88797 8787 66978
//$DATA
Job Control Cards and Program Deck
Job Card

```
//RB796     JOB (E105-.106-J,*10.003,GH),'BEKKER, GERALD                          JOB 309
//*PASSWORD         ************************************************************
//*WATFIV
//*FORMS            14101005
C
C
C                            VARIABLE NAMES AND DESCRIPTIONS
C
C                            ANS(40)--ANSWERS--IS A VECTOR INTO WHICH THE RATINGS
C                            GIVEN TO THE "YES" AND "NO" ANSWERS TO THE INTERVIEW
C                            QUESTIONS ARE PLACED FOR COMPUTATIONS.
C
C                            WEI(50)--WEIGHTS--IS A VECTOR INTO WHICH THE WEIGHT
C                            FACTORS ASSIGNED TO EACH GOAL ARE PLACED.  THE PLACE-
C                            MENT OF THE ELEMENTS IN THIS VECTOR PROVIDES THE MAJOR
C                            KEY FOR TRANSFERRING CONTROL TO VARIOUS STATEMENTS IN
C                            THIS PROGRAM.  THESE WEIGHT FACTORS WERE COMPUTED IN A
C                            PREVIOUS PROGRAM.
C
C                            SWEI(15)--STORED WEIGHT FACTORS--IS A VECTOR THAT IS
C                            USED TO TEMPORARILY STORE SELECTED WEIGHT FACTORS FOR
C                            FUTURE COMPUTATIONS AND PRINTING.
C
C                            SSUMAN(15)--STORED SUM OF THE ANSWERS--IS A VECTOR THAT
C                            IS USED TO TEMPORARILY STORE, FOR FUTURE COMPUTATIONS
C                            AND PRINTING, THE SUM OF ANS(40).
C
C                            MM(15)--IS A VECTOR WHICH TEMPORARILY STORES, FOR FUTURE
C                            COMPUTATIONS AND PRINTING, THE NUMBER OF "YES" AND "NO"
C                            ANSWERS IN ANS(40) FOR EACH GOAL.
C
C                            RR(15)--IS A VECTOR WHICH TEMPORARILY STORES THE OBJEC-
C                            TIVE NUMBER, R, IN EACH ELEMENT FOR FUTURE PRINTING.
C
C                            INSTI(80)--INSTITUTION--IS A VECTOR INTO WHICH THE NAME
C                            OF THE INSTITUTION IS PLACED.  THE NAME OF THE INSTITU-
C                            TION IS READ INTO A VECTOR AS INTEGERS FOR LATER CHARAC-
C                            TER MANIPULATIONS.
C
C                            PROG(80)--PROGRAM--IS A VECTOR INTO WHICH THE NAME OF
C                            THE PROGRAM BEING ANALYZED IS PLACED.
C
C                            SUMWEI--SUM OF THE WEIGHT FACTORS--IS THE SUM OF THE
C                            GOAL STATEMENT WEIGHTS FOR AN OBJECTIVE.
C
C                            R--IS THE OBJECTIVE NUMBER AND RANGES FROM 1 TO 4 FOR
C                            EACH PROGRAM.
C
C                            PERCEN--PERCENT--IS THE PERCENT OF OBJECTIVE ACHIEVE-
C                            MENT.
C
C                            L--IS A COUNTER WHICH IS INCREMENTED EACH TIME A DATA
C                            CARD CONTAINING THE RATE) "YES" AND "NO" ANSWERS IS
C                            READ.  "L" THEN BECOMES THE NUMBER OF GOALS PER
C                            OBJECTIVE.
C
C                            K--IS A COUNTER WHICH IS INCREMENTED EACH TIME THE
C                            VECTOR ANS(40) IS SUMMED.  "K" THEN BECOMES THE SUB-
C                            SCRIPT FOR THE OTHER VECTORS THAT TEMPORARILY STORE DATA
C                            FOR FUTURE COMPUTATIONS AND PRINTING.
```

```
      DIMENSION ANS(40), SSUMAN(15)
      INTEGER XX/'Z'/, INSTI(80), PROG(80)
      INTEGER WEI(50), SWEI(15), MM(15), SUMWEI, R, RR(15), PERCEN
C
C                   ***************************************************
C                   *                                                 *
C                   *  PRINT TITLE PAGE                               *
C                   *                                                 *
C                   ***************************************************
C
      PRINT 900
      DO 5 I=1, 7
    5 PRINT 600
      PRINT 601
      PRINT 602
      PRINT 602
      PRINT 603
      DO 6 I=1, 5
    6 PRINT 602
      PRINT 604
      PRINT 602
      PRINT 602
      PRINT 605
      PRINT 602
      PRINT 602
      PRINT 601
C
C                   ***************************************************
C                   *                                                 *
C                   *  READ THE WEIGHT FACTORS THAT WERE PREVIOUSLY   *
C                   *  ASSIGNED TO THE GOAL STATEMENTS.               *
C                   *                                                 *
C                   *  INITIALIZE COUNTERS AND VARIABLES.             *
C                   *                                                 *
C                   ***************************************************
C
      READ 100, (WEI(I), I=1, 50)
    9 R = 1
      J = 0
      K = 0
      L = 0
      SUMWEI = 0
C
C                   ***************************************************
C                   *                                                 *
C                   *  READ THE NAME OF THE INSTITUTION AND THE PROGRAM *
C                   *  THAT IS TO BE ANALYZED.  THE IF-STATEMENT IS USED *
C                   *  TO DETERMINE IF ALL DATA CARDS HAVE BEEN READ. *
C                   *                                                 *
C                   *  THE LAST DATA CARD MUST CONTAIN ZZZZZ'S IN THE *
C                   *  FIRST FEW COLUMNS.                             *
C                   *                                                 *
C                   ***************************************************
C
      READ 101, (INSTI(I), I=1, 80)
      IF ((INSTI(1).EQ.XX).AND.(INSTI(2).EQ.XX)) GO TO 99
      READ 101, (PROG(I), I=1, 80)
```

```
C
C
C                         *****************************************************
C                         *                                                   *
C                         *  PRINT THE NAME OF THE INSTITUTION AND PROGRAM AT *
C                         *  THE TOP OF A NEW PAGE OF OUTPUT.  PRINT 502 IS A *
C                         *  ROW OF ASTERISKS.                                *
C                         *                                                   *
C                         *****************************************************
      PRINT 500, (INSTI(I), I=1, 80)
      PRINT 501, (PROG(I), I=1, 80)
      PRINT 502
C
C
C                         *****************************************************
C                         *                                                   *
C                         *  THE GOAL STATEMENTS FOR EACH OBJECTIVE WERE      *
C                         *  SEPARATED BY A BLANK ON THE FIRST DATA CARD.     *
C                         *                                                   *
C                         *  THEREFORE, THE PRESENCE OF A ZERO AT THIS POINT  *
C                         *  WILL INDICATE THE COMPLETION OF THE ANALYSIS FOR *
C                         *  ONE OBJECTIVE AND CONTROL WILL PASS TO STATEMENT *
C                         *  39 FOR THE SUBSEQUENT PRINTING OF THE RESULTS.   *
C                         *                                                   *
C                         *  IF NO ZERO IS PRESENT, A DATA CARD IS READ.      *
C                         *                                                   *
C                         *****************************************************
   19 J = J + 1
      IF (WEI(J).EQ.0) GO TO 39
C
C
C                         *****************************************************
C                         *                                                   *
C                         *  READ A DATA CARD WHICH CONTAINS THE RATINGS GIVEN*
C                         *  THE "YES" AND "NO" ANSWERS TO THE QUESTIONS CON- *
C                         *  CERNING A SPECIFIC GOAL STATEMENT.  "L" IS INCRE-*
C                         *  MENTED TO INDICATE THAT A DATA CARD HAS BEEN READ.*
C                         *                                                   *
C                         *****************************************************
      READ 102, (ANS(I), I=1, 40)
      L = L + 1
C
C
C                         *****************************************************
C                         *                                                   *
C                         *  SCAN THE VECTOR, ANS(40), TO DETERMINE THE NUMBER*
C                         *  OF ANSWERS CONTAINED ON THE DATA CARD.  "M" IS   *
C                         *  INCREMENTED ONCE FOR EACH ANSWER.                *
C                         *                                                   *
C                         *****************************************************
      M = 0
      DO 1 I=1, 40
         IF (ANS(I).NE.9.9) M = M + 1
         IF (ANS(I).EQ.9.9) GO TO 29
    1 CONTINUE
```

```
C
C     **************************************************
C     *                                                *
C     *  INCREMENT K, WHICH IS USED ONLY FOR A SUBSCRIPT *
C     *  AND PLACE THE NUMBER OF ANSWERS, M, INTO THE  *
C     *  VECTOR MM(15) FOR TEMPORARY STORAGE.           *
C     *                                                *
C     **************************************************
C
   29 K = K + 1
      MM(K) = M
C
C     **************************************************
C     *                                                *
C     *  ADD THE RATINGS CONTAINED IN ANS(40) AND PLACE THE *
C     *  SUM IN SUMANS--SUM OF ANSWERS.                 *
C     *                                                *
C     **************************************************
C
      SUMANS = 0.0
      DO 2 I=1, M
    2 SUMANS = SUMANS + ANS(I)
C
C     **************************************************
C     *                                                *
C     *  PLACE THE SUM OF ANSWERS--SUMANS--IN A VECTOR. *
C     *  SSUMAN(15),--STORED SUM OF ANSWERS--FOR FUTURE *
C     *  COMPUTATIONS AND PRINTING.                     *
C     *                                                *
C     *  ALSO, PLACE THE CORRESPONDING GOAL WEIGHT IN A *
C     *  TEMPORARY STORAGE VECTOR, SWEI(15),--STORED    *
C     *  WEIGHTS--AND SUM THE WEIGHTS IN SUMWEI--SUM OF *
C     *  WEIGHTS--FOR FUTURE CALCULATIONS.              *
C     *                                                *
C     **************************************************
C
      SSUMAN(K) = SUMANS
      SWEI(K) = WEI(J)
      SUMWEI = SUMWEI + SWEI(K)
```

```
C
C                             ********************************************************
C                             *                                                      *
C                             *  RETURN TO STATEMENT 19 TO DETERMINE IF ALL DATA     *
C                             *  CARDS FOR A PARTICULAR OBJECTIVE HAVE BEEN READ.    *
C                             *                                                      *
C                             *  IF ALL DATA CARDS FOR A PARTICULAR OBJECTIVE HAVE   *
C                             *  BEEN READ, CONTROL RETURNS TO THIS POINT FOR PRINT- *
C                             *  ING THE OBJECTIVE NUMBER, THE GOAL NUMBERS, THE     *
C                             *  WEIGHT FACTOR ASSIGNED TO EACH GOAL, THE NUMBER OF  *
C                             *  QUESTIONS PER GOAL, AND THE SUM OF THE RATINGS FOR  *
C                             *  EACH QUESTION.                                      *
C                             *                                                      *
C                             ********************************************************
C
      GO TO 19
   39 PRINT 503, R
      DO 3 I=1, 15
    3 RR(I) = R
      PRINT 504, (RR(I), I=1, L)
      PRINT 505, (SWEI(I), I=1, L)
      PRINT 506, (MM(I), I=1, L)
      PRINT 507, (SSUMAN(I), I=1, L)
C
C                             ********************************************************
C                             *                                                      *
C                             *  CALCULATE THE PERCENT ACHIEVEMENT FOR THE OBJECTIVE *
C                             *  BEING ANALYZED.                                     *
C                             *                                                      *
C                             *  WAVANS--WEIGHTED AVERAGE OF THE ANSWERS--IS THE     *
C                             *  AVERAGE ACCOMPLISHMENT OF A GOAL MULTIPLIED BY ITS  *
C                             *  ASSIGNED WEIGHT FACTOR.                             *
C                             *                                                      *
C                             *  PER IS THE PERCENT OF ACHIEVEMENT IN REAL NUMBER    *
C                             *  FORM WHILE PERCEN IS THE PERCENT OF ACHIEVEMENT IN  *
C                             *  INTEGER FORM.  .5 IS ADDED FOR ROUNDING PURPOSES.   *
C                             *                                                      *
C                             ********************************************************
C
      WAVANS = 0.0
      DO 4 I=1, L
    4 WAVANS = WAVANS + ((SSUMAN(I) / FLOAT(MM(I))) * FLOAT(SWEI(I)))
      PER = (WAVANS / FLOAT(SUMWEI)) * 100
      PERCEN = IFIX(PER + .5)
C
C                             ********************************************************
C                             *                                                      *
C                             *  PRINT THE PERCENT OBJECTIVE ACHIEVEMENT AND RESET   *
C                             *  COUNTERS AND VARIABLES IN PREPARATION FOR ANALYZING *
C                             *  THE NEXT OBJECTIVE.                                 *
C                             *                                                      *
C                             ********************************************************
C
      PRINT 508, PERCEN
      PRINT 502
      R = R + 1
      L = 0
      K = 0
      SUMWEI = 0
```

```
C
C
C                        ************************************************************
C                        *                                                          *
C                        *  DETERMINE IF ALL OBJECTIVES FOR A PARTICULAR PRO-       *
C                        *  GRAM HAVE BEEN ANALYZED.  IF NOT, CONTROL PASSES        *
C                        *  TO STATEMENT 19 AND THE NEXT OBJECTIVE IS ANALYZED.     *
C                        *                                                          *
C                        *  IF ALL OBJECTIVES FOR A PROGRAM HAVE BEEN ANALYZED,     *
C                        *  CONTROL PASSES TO STATEMENT 9 AND ANOTHER PROGRAM       *
C                        *  IS PROCESSED.                                           *
C                        *                                                          *
C                        ************************************************************
C
C
      IF ((WEI(J).EQ.0).AND.(WEI(J+1).EQ.0)) GO TO 9
      GO TO 19
   69 PRINT 900
C
C                        ************************************************************
C                        *                                                          *
C                        *  FORMAT STATEMENTS                                       *
C                        *                                                          *
C                        *     100'S--INPUT STATEMENTS                              *
C                        *       100  GOAL WEIGHTS                                  *
C                        *       101  INSTITUTION AND PROGRAM                       *
C                        *       102  ANSWER RATINGS                                *
C                        *                                                          *
C                        *     500'S--OUTPUT STATEMENTS                             *
C                        *       500  INSTITUTION                                   *
C                        *       501  PROGRAM                                       *
C                        *       502  LINE OF ASTERISKS                             *
C                        *       503  OBJECTIVE NUMBER                              *
C                        *       504  GOAL NUMBER                                   *
C                        *       505  WEIGHT FACTORS                                *
C                        *       506  NUMBER OF QUESTIONS PER GOAL                  *
C                        *       507  ANSWER RATINGS                                *
C                        *       508  PERCENT ACHIEVEMENT                           *
C                        *                                                          *
C                        *     600'S--TITLE PAGE                                    *
C                        *                                                          *
C                        *     900--END OF PROGRAM                                  *
C                        *                                                          *
C                        ************************************************************
```

```
100 FO[illegible]I1)
101 FORM[illegible]A1)
102 FORMA[illegible]0F2.1)
500 FORMAT ('1', 80A1)
501 FORMAT (' ', 80A1)
502 FORMAT ('0', '**********************************************************
   *************************************************************
   ****************')
503 FORMAT ('0', T4, 'OBJECTIVE', I3)
504 FORMAT ('0', T6, 'GOAL NUMBER', T23, I1, T24, ':01', T31, I1, T32,
   *':02', T39, I1, T40, ':03', T47, I1, T48, ':04', T55, I1, T56,
   *':05', T63, I1, T64, ':06', T71, I1, T72, ':07', T79, I1, T80,
   *':08', T87, I1, T88, ':09', T95, I1, T96, ':10', T103, I1, T104,
   *':11', T111, I1, T112, ':12', T119, I1, T120, ':13', T127, I1,
   *T128, ':14')
505 FORMAT ('0', T6, 'WEIGHT FACTOR', T26, I1, T34, I1, T42, I1, T50,
   *I1, T58, I1, T66, I1, T74, I1, T82, I1, T90, I1, T98, I1, T106,
   *I1, T114, I1, T122, I1, T130, I1)
506 FORMAT ('0', T6, 'NO. QUESTIONS', T25, I2, T33, I2, T41, I2, T49,
   *I2, T57, I2, T65, I2, T73, I2, T81, I2, T89, I2, T97, I2, T105,
   *I2, T113, I2, T121, I2, T129, I2)
507 FORMAT ('0', T6, 'RATING', T23, F4.1, T31, F4.1, T39, F4.1, T47,
   *F4.1, T55, F4.1, T63, F4.1, T71, F4.1, T79, F4.1, T87, F4.1, T95,
   *F4.1, T103, F4.1, T111, F4.1, T119, F4.1, T127, F4.1)
508 FORMAT ('0', T55, 'PERCENT ACHIEVEMENT =', I4)
600 FORMAT ('-')
601 FORMAT (' ', T46, '********************************************')
602 FORMAT (' ', T46, '*                                          *')
603 FORMAT (' ', T46, '*      VOCATIONAL PROGRAM EVALUATIONS      *')
604 FORMAT (' ', T46, '*          OBJECTIVE  ACHIEVEMENT          *')
605 FORMAT (' ', T46, '*        BY INSTITUTION AND PROGRAM        *')
900 FORMAT ('1')
    STOP
    END

//$DATA
```

VOCATIONAL PROGRAM EVALUATIONS

OBJECTIVE ACHIEVEMENT

BY INSTITUTION AND PROGRAM

```
INSTITUTION NAME
PROGRAM TITLE
***************************************************************************

 OBJECTIVE  1

   GOAL NUMBER        1:01     1:02     1:03     1:04

   WEIGHT FACTOR         7        6        7        8

   NO. QUESTIONS        12        6       11       13

   RATING              6.1      3.7      9.5      9.4
                                                        PERCENT ACHIEVEMENT =  68

***************************************************************************

 OBJECTIVE  2

   GOAL NUMBER        2:01     2:02     2:03     2:04     2:05

   WEIGHT FACTOR         8        8        7        9        7

   NO. QUESTIONS         9        8       10       11       10

   RATING              7.8      5.6      7.6      5.5      8.8
                                                        PERCENT ACHIEVEMENT =  73

***************************************************************************

 OBJECTIVE  3

   GOAL NUMBER        3:01     3:02     3:03     3:04

   WEIGHT FACTOR         8        7        8        7

   NO. QUESTIONS        13       12       23       17

   RATING              7.3      8.3     11.5      9.7
                                                        PERCENT ACHIEVEMENT =  60

***************************************************************************

 OBJECTIVE  4

   GOAL NUMBER        4:01     4:02     4:03     4:04     4:05

   WEIGHT FACTOR         6        6        9        7        8

   NO. QUESTIONS         9        9        8       11       20

   RATING              6.3      3.0      6.1      6.8      8.6
                                                        PERCENT ACHIEVEMENT =  58

***************************************************************************
```

APPENDIX E

Data Tabulation Sheet

DATA TABULATION SHEET

Institution:____________________________ Program:____________________________

Goal	Question Ratings																					
1:01																						
1:02																						
1:03																						
1:04																						
2:01																						
2:02																						
2:03																						
2:04																						
2:05																						
2:06																						
3:01																						
3:02																						
3:03																						
3:04																						
3:05																						
4:01																						
4:02																						
4:03																						
4:04																						
4:05																						
4:06																						
4:07																						
4:08																						
4:09																						